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PROGRAM MANAGER



SPECIAL FEATURE

Comanche RAH-66 twin-engine, advanced technology helicopter designed to get up close to the action and locate the enemy.

Rostker Tackles Civilian Education Issues



Bernard D. Rostker, Ph.D.
*Under Secretary of Defense
(Personnel and Readiness)*

Speaking at the Naval Medical Center Conference on Civilian Education and Professional Development, Under Secretary Rostker says DoD must develop and sharpen the civilian workforce for the future, and the time to start is *today*.

ALSO IN THIS ISSUE:

**SUPPORTING THE ARMY IN
TRANSITION**

**MANAGING SECURITY
ASSISTANCE**

LEVERAGING DIVERSITY

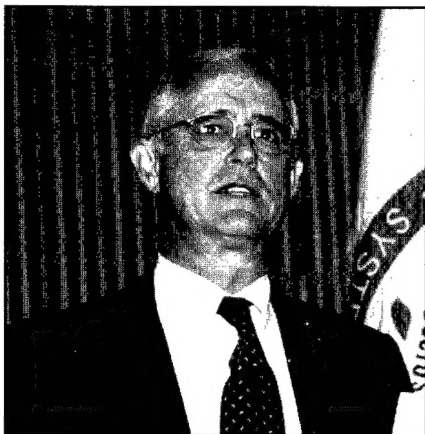


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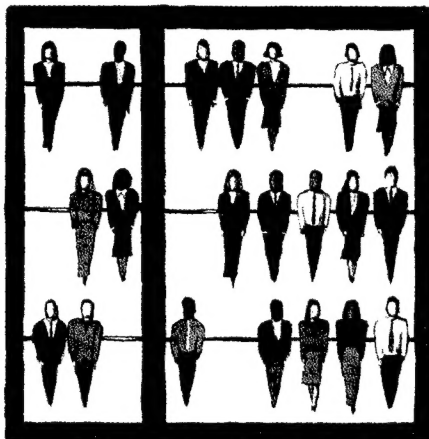


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Lynn Freudenthal

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David A. Breslin

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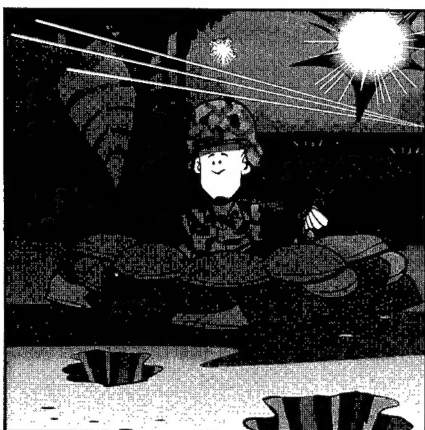


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Maj. Gen. Joseph L. Bergantz, USA

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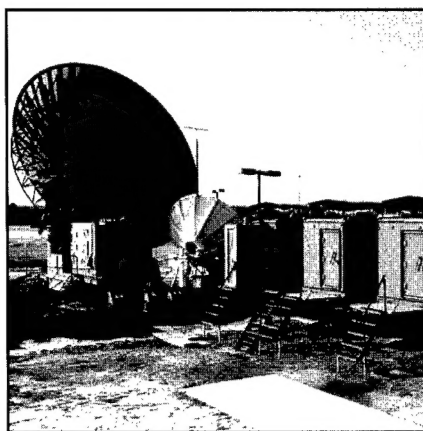
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Rostker Tackles Civilian Education

Sgt. Kenneth E. Lowery II, USA
Under Secretary of Defense for Personnel and Readiness Dr. Bernard D. Rostker presents several innovative civilian education initiatives in a July speech at the Naval Medical Center, Bethesda, Md.



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GuardRail Pilot Program — A Legacy of Teaming

Maj. Steven Winter, USA • David E. Sterling
The Army's GuardRail/Common Sensor (GR/CS) Program has now joined the list of major system developments to follow the Total Ownership Cost Reduction model.

17th Annual DSMCAA Symposium

Commerciality — Opportunities for DoD Acquisition

LYNN FREUDENTHAL

With the emphasis on greater use of commercial business practices and greater use of commercial entities to do the work that the DoD acquisition, technology and logistics work-force manages, commerciality is the cornerstone of acquisition reform. Principles, policies, and practices of DoD acquisition increasingly have been modeled after the best of the commercial world.

In this spirit, the Defense Systems Management College Alumni Association (DSMCAA) brought DoD and industry representatives together for the 17th Annual DSMCAA Symposium: "Commerciality: Opportunities in DoD Acquisition," held June 20-22 at the DSMC main campus, Fort Belvoir, Va.

The Symposium dedicated three days to education on all aspects of commerciality as DoD and industry representatives focused on a variety of panels and workshops. Setting the tone for the Symposium were keynote speakers Dr. Jacques Gansler, Under Secretary of Defense for Acquisition, Technology and Logistics; and William Kovacic, Professor of Law, The George Washington University.

Continuing Commercial Acquisition Reform

Gansler discussed the goals and successes of the acquisition reform effort. "Better, faster, and less expensive" now prevails throughout DoD, including an increase in Total Asset Visibility from 56 to 94 percent, a reduction in inventories from \$60 billion to \$48 billion, and pilot programs that achieved lower costs and better results. Citing the Joint Defense Attack Munitions program with its 50

"You can do things faster and cheaper and still be a lot better."

Dr. Jacques S. Gansler, Under Secretary of Defense (Acquisition, Technology and Logistics).



From left: Mark Salesky, DSMCAA President; Air Force Brig. Gen. Frank J. Anderson, Commandant, DSMC; Larry Curfiss, Vice President and Director of Commercial Products, ITT Industries Night Vision.

Stan Z. Soloway, Deputy Under Secretary of Defense (Acquisition Reform).



percent reduction in cost and proven performance in Kosovo, Gansler said, "You can do things faster and cheaper and still be a lot better."

Gansler noted DoD's upcoming challenges. The Department must maintain the Revolution in Military Affairs and the Revolution in Business Affairs while transforming the acquisition, technology and logistics workforce. However,

From left: Meredith Murphy, Vice President Symposium Committee, DSMCAA; Dr. Jacques S. Gansler, Under Secretary of Defense (Acquisition, Technology and Logistics); Wayne Glass, Vice President (Operations), DSMCAA.



he sees these challenges as opportunities to implement more reforms.

Kovacic addressed maintaining reform through the interruptions of congressional budget cycles and the wait between measuring success and the next round of reforms. He says there are three ways to maintain that momentum:

- Adjust rules and procedures as you go for maximum flexibility and performance, rather than focus on maintaining rules.
- Give managers the latitude to succeed and fail. "Don't shoot good people when they fail," said Kovacic. "In the high tech industry, there will be three or four failures for each success story."
- Stay close to your users, and listen to what they say.

The Workforce is Key

A key tenet in commerciality for DoD acquisition is that government managers become administrators of commercially outsourced work. From where will the workers and managers come? With DoD drawdowns, an aging workforce, and a tight labor market in information technology, most panels emphasized that the workforce will be key to acquisition reform and warfighter readiness.

"DoD is driven by workforce realities in terms of obtaining technology," said Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform). "People aren't planning for 15- to 25-year careers anymore. HR [Human Resources] representatives report that the average worker tenure is three to five years." That, he acknowledged, has a direct impact on DoD planning for major acquisitions, which will span many of those shorter worker tenures.

Both DoD and commercial defense industries will be under pressure to provide the best technical people possible.

From left: Retired Navy Rear Adm. Leonard Vincent, former DSMC Commandant; Stan Z. Soloway, Deputy Under Secretary of Defense (Acquisition Reform); Air Force Brig. Gen. Frank J. Anderson, Commandant, DSMC.

17TH ANNUAL D S COMMERCIALITY — OPPORTU



From left: Paul McMahon, DSMCAA Board of Directors; Retired Navy Cmdr. Tom Stanton; Bob Ivaniszek, ANSER Corporation; Gary Wimberly, DSMCAA Capital Area Chapter President.



From left: Mark Salesky, DSMCAA President; William Gibson, DCMA; Gary Crystal, OUSD (AT&L); Bob Pattie, The Boeing Company; Walt Berke, LMSC, Inc.



Wesley Harris, Lean Aerospace Initiative – Economic Incentives Workshop.



Army Lt. Col. Bernard Witten, DSMC Professor, Small Business Innovations Workshop.



Dr. Tony Perino, DSMC Professor, Performance-Based Payments Workshop.



From left: Stan Z. Soloway, Deputy Under Secretary of Defense (Acquisition Reform); retired Navy Rear Adm. Leonard Vincent, former DSMC Commandant; Dr. Marilyn Andrulis, President and CEO, Andrulis Corporation; Richard Foley, Vice President, Contracts, Raytheon Corporation; Meredith Murphy, Vice President Symposium Committee, DSMCAA.



From left: Norm McDaniel, Former DSMCAA VP Membership; Joanne Barreca, 1st DSMCAA President; Retired Navy Cmdr. William Montgomery.

DSMCAA SYMPOSIUM OPPORTUNITIES FOR DOD ACQUISITION



Dr. John Hamel, DSMC Professor, receives participant's gift from Meredith Murphy, VP Symposium, DSMCAA.



From left: Maureen Fino, VP Symposium, DSMCAA; Ellen Brown, Senior Counsel, Senate Governmental Affairs Committee; Jonathan Ether-ton, Legislative Affairs, Aerospace Industries Association; Bill Greenwalt, Professional Staff Member, Senate Armed Services Committee; Meredith Murphy, VP Symposium, DSMCAA.



Bill Bahnmaier, DSMC Professor, Risk Management Workshop.



Mike Evans, Integrated Computers Engineering, Inc., Campbell, Calif., Software Risk Management Workshop.



Dave Schwiekle, Vice President, Delta Launch Systems, Inc., The Boeing Company.



Standing from left: Bill Birkhofer, DSMCAA Director at Large; Jim Ledbetter, DSMCAA Director at Large; Chris Feudo, DSMCAA Director at Large; Bob Faulk, DSMCAA VP (Publications); Navy Cmdr. Max Snell, DSMCAA Treasurer. Seated from left: Mark Salesky, DSMCAA President; Maureen Fino, VP Symposium, DSMCAA; Wayne Glass, VP (Operations), DSMCAA.



From left: Dr. John Hamel, DSMC Professor; Bob Pattie, The Boeing Company; Meredith Murphy, VP Symposium, DSMCAA; Web Heath, The Boeing Company.

But, they also face increased competition for the best technical personnel with the "dot.coms" and other industries. This could have a negative impact on supplying warfighters with the latest technologies.

"A lack of current technical expertise in PMs [Program Managers] is one factor that inhibits CMI [Civil-Military Integration]," said panelist Marilyn Andrulis, President and CEO, Andrulis Corporation. "That training must be made available."

Air Force Brig. Gen. Frank Anderson, Commandant, DSMC, also addressed this issue. Training cannot be a matter of choosing courses, he said. Training must focus on building particular skill sets.

Gansler also touched on the subject of training, stating that DoD training and education also can be used as leverage in an increasingly competitive labor market. "The thing that lures people into the government world," according to Gansler, "is that it might not be the highest-paying job but it is the most technologically challenging job."

Customer Focus

The symposium luncheon and banquet speakers emphasized customer focus, advising participants to begin the acquisition process with the end in mind.

In his remarks, Soloway said that acquisition reform and commerciality come down to performance, flexibility, and communication. All acquisition processes must begin with the customer in mind, rather than with a subject matter or job area perspective.

"We are not particularly good at defining our customer and taking a global view," he said, "Industry is much better at that than DoD." The DoD 5000 Rewrite, he explained, is directed to provide the flexibility needed to establish and maintain customer focus because requirements and acquisition will be more closely aligned.

Soloway urged the audience to think about the impacts of change from within

and outside of DoD. For instance, there has been an enormous shift in how Research and Development (R&D) funds are invested in the U.S. economy. Twenty years ago, he noted, DoD was the "big spender" in R&D. Today, 75 to 80 percent of businesses spend more on R&D than DoD's total R&D budget.

DoD's place in the market has changed dramatically, Soloway said, and it must focus on competing for people and partnering for technologies with the commercial sector. To do so, DoD has task forces and committees in place working performance-based acquisition and workforce issues, and the Services have begun using online auctions. Soloway said he likes auctioning as a concept but is concerned that auctioning could drive prices so low that companies do not have the money to invest in product improvements customers will demand.

Larry Curfiss, Vice President and Director of Commercial Products, ITT Industries Night Vision, discussed his division's shift from government customers to a mix of government and commercial customers. Finding and maintaining the customer focus continues to be Night Vision's greatest challenge. "We spent lots of time and money to find out who our customer is," said Curfiss. "Marketing was initially 65 percent of our total budget." Night Vision lost money for the first three years of this expansion from government into commercial, and Curfiss estimated that it took an additional three years to adjust to the cultural changes associated with that expansion.

When asked about the lessons learned, Curfiss cited four lessons organizations in transition should heed:

- Organizations need to deal with cultural change and address cultural problems within upfront.
- Organizations need to understand marketing and distribution.
- Any organization with a commercial and government separation needs to maintain but manage that separation.
- Organizations need to move product staff to where the workload is.

Civil Military Integration – The New Reality

Many panel discussions and workshops took place during the symposium, covering issues of major impact to DoD's future in commerciality.

- Congressional Support for Commerciality
- Risk Management
- Acquisition Strategy for Commercial Items
- Evaluating Risk of Commercial Strategies
- Electronic Commerce in DoD
- Update on DoD 5000
- Prime and Subcontractor Views of Commerciality at the Subcontractor Level
- Price Based Acquisition as a Vehicle to Implement Commerciality
- Commercial Best Practices for Software
- Alternative Dispute Resolution
- Performance Based Payments
- New Directions in DoD Logistics
- Dual Use Technologies in DoD
- Transitioning to ISO 9000:2000
- Acquisition Reform in Commercial Aircraft
- Small Business Innovation Research
- Managing Earned Value
- Lean Aerospace Initiative – Economic Incentives
- Commercial Contracting
- Software Metrics
- The *Good*, the *Bad*, and the *IDIQ* (Indefinite Delivery Indefinite Quantity)

Each panel and workshop addressed changes in their respective areas and their impacts on the future of DoD acquisition. But, the panel discussion, "Is Civil/Military Integration (CMI) Possible?" cut to the heart of the issue of commerciality.

Moderated by Stan Soloway, other panel members were: Robert Ingersoll, Vice President, Contracts and Pricing, The Boeing Company; Richard Foley, Vice President, Contracts, Raytheon Corporation; Dr. Marilyn Andrulis, President and CEO, Andrulis Corporation; and Dr. James Carnes, President and CEO, Sarnoff Corporation.

Introducing the panel, Soloway stated that CMI has already happened but has yet to be realized. "Will we [DoD] be able to take advantage of it?" he asked.

Ingersoll said that he also looks at CMI as a reality but noted three strategic focus areas for industry and DoD.

- Optimization of CMI – Asset allocation and various resources can be better integrated. Ingersoll also encouraged further integration of processes and practices, but said, "Commercial isn't always better," using DoD's Earned Value Management concept as an example.
- Globalization – Both industry and DoD will continue to "go global."
- E-Commerce – Business-to-business interchanges will become the norm.

Foley said there has been a great deal of success in CMI, but there will always be a difference between commercial and government sales. He said performance-based and price-based acquisition strategies will contribute to greater CMI. Barriers to CMI, he said, are Federal

Acquisition Regulation Part 12 fixed price requirements, lack of multi-year contracts, Wall Street's concern with the defense industry's health, remaining complexities in contract administration, and competition for the best of the workforce with dot.coms.

Andrulis also saw some barriers to full CMI, including unrealistic cost estimates and technological expectations. To counteract that, she suggested shifting project time frames from five or more years to the industry standard of 18 months to three years and rewarding companies that meet or exceed performance and delivery time frames. Andrulis also discussed DoD's increasing "efficiency and effectiveness" metric that, in her view, inherently favors large business over small business.

Carnes also said that CMI is imperative because commercial R&D investment far outpaces DoD's. Impediments on CMI he discussed were restrictions on corporate intellectual property rights when engaged in government work, cost-based pricing, and difficulties in over-

sight and contract negotiation due to regulation. All of these factors, Carnes said, turn companies away from government work because the return on resources is less than in commercial work.

Carnes discussed a commercial agreements prototype for R&D contracting being conducted at the Defense Advanced Research Projects Agency (DARPA). The DARPA prototype features payable milestones and allows contractors to retain intellectual property rights for commercial use. Carnes said the biggest benefit of the prototype is that it has no cost-reimbursable contracts, which reduce audit needs and system infrastructures.

While CMI and other aspects of commerciality in DoD acquisition are new and being improved, one thing is certain: Commerciality is the future, and the future is in process.

Editor's Note: To learn more about DSMCAA or register online using a credit card, visit <http://www.dsmcaa.org>.

Defense
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Defense Resources Management Course

Course Objectives

Develop an understanding of resource management concepts, principles, and techniques

Who Should Attend?

Managers working in all fields concerned with resource allocation

Who is Eligible?

- Military Officers (active or reserve) 0-4 and above
- Civilian DoD, GS-11 and above
- Equivalent ranking military & civilian officials of other nations



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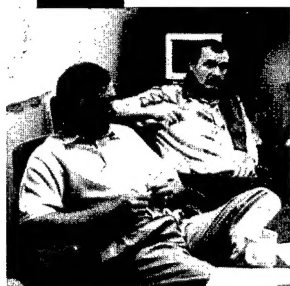
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Acquisition Reform Seminar

Seen Through the Lens of A-76 and Strategic Sourcing

SYLWIA TERESA GASIOREK

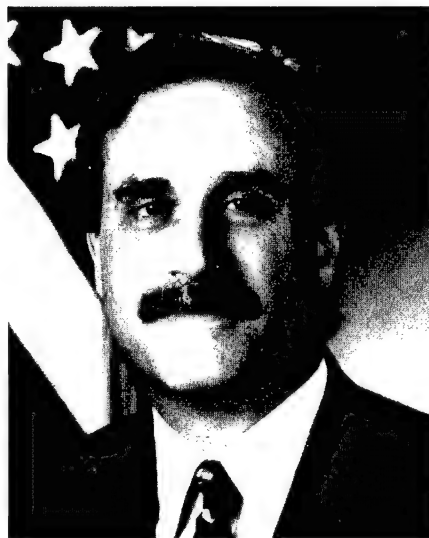
In acquisition reform (AR) the biggest challenge we face is finding improved ways of doing business and finding innovative solutions to the problems that confront us. Including industry in the decision making is a must.

In this spirit, the Center for Public-Private Enterprise (CPPE) brought DoD and Industry representatives together for "Acquisition Reform Seminar: Seen through the Lens of A-76 and Strategic Sourcing" — the first seminar to address AR, A-76, and Strategic Sourcing at one time. Held at Gallaudet University's Kellogg Conference Center Aug. 28, this forum emphasized greater use of business practices and Strategic Sourcing by focusing on these questions:

- What it is.
- What it could be.
- What its future role is in filling the gap between AR goals and traditional approaches to A-76.

This energizing event featured experts from Office of Management and Budget (OMB), Office of the Secretary of Defense (OSD), General Accounting Office, RAND, ANSER, and private industry, offering case studies, presentations, and panel discussions.

Setting the tone for the seminar, keynote speaker Stan Z. Soloway, Deputy Under Secretary of Defense for Acquisition Reform said, "There is no doubt that the challenges we face as a Department in



"The bottom line is competitions that work, competitions that are fair, and competitions that really drive us to optimize in ways that serve a broader interest in DoD and the mission we are here to serve, not just our local interest."

**—Stan Z. Soloway,
Deputy Under Secretary of
Defense for Acquisition Reform**

terms of achieving ... budgetary goals and performance objectives ... are sometimes overlooked and underestimated. The challenges are really quite signifi-

cant." Using the budget as an example, Soloway noted that because this year DoD did reach its \$62 billion procurement goal, the presumption is that many budget problems are now solved, and we [DoD] are on the way to achieving our goal.

"Reality is that if you look at any analysis ... our budget problems are far from over, and that we have enormous challenges financially over the next 8-10 years, if we are going to recapitalize and remodernize the force."

Customer Focus

"Our number one responsibility as a Department," according to Soloway, "is to show a ready force for the troops in the field. I make that statement because much of AR from Day 1, back in the early 90s, has been geared toward the concept of customer service and customer focus. But I think many times we forget that. We don't forget the idea of customers; I think we forget the definition of what true customer focus is."

He also emphasized that redefining and rethinking customer support is the biggest change taking place in American history in the last 15 years. "If you look at concepts like balanced scorecards and some other things that evolved over the last 10-15 years, what they are really about is everybody in the organization stepping back and looking at common top-level goals, and driving everything that is under the organization to achieving those top-level goals," he said.

As far as the Department and the government in general are concerned, Soloway said there is still a long way to go. "We still tend to look at our cus-

Gasiorek is a full-time contract editor for Program Manager magazine. A native of Poland, she holds an M.B.A. from Strayer University, where she graduated Who's Who Among Students in American Universities and Colleges.

tomers as those we must immediately serve and most intermediately interact with, but sometimes we fail to step back and wait a second. What is the best strategy, what is the best solution for the organization at the time, looking down at our overall, overarching goals, objectives, and requirements?"

Strategic Sourcing — A Program With Great Potential

As stated in the DoD Interim Guidance, Feb. 29, 2000, the Strategic Sourcing Program is a way to maximize effectiveness, efficiencies, and savings throughout the Department. It provides an approach for DoD Components to use, to meet, or to exceed their competitive sourcing goals. And it provides a broader approach than the traditional OMB Circular A-76, extending opportunities to achieve efficiencies in areas that are exempt from the A-76 competitive process.

Strategic Sourcing is not a replacement for A-76; the program relies on a broad range of manpower management techniques to achieve savings rather than relying solely on A-76 competition. This allows managers to consider a wide range of options, including:

- Eliminating obsolete practices.
- Consolidating functions or activities.
- Reengineering and restructuring organizations, functions, or activities.
- Adopting best business practices.
- Providing Activity Based Costing (ABC) management.
- Privatizing functions or activities.

Commenting on the strategies employed during the Strategic Sourcing Program, Soloway asked, "Are we really trying to achieve a 15 percent cost reduction at a given base, or are we trying to achieve maximum efficiency to support the folks, not only at the base, but be able to contribute to the much broader mission of the Department of Defense. It is that piece that I think inarguably we have yet to accomplish. We also need to look at the much larger position, much larger world that we are to serve."

Soloway also stated that the government did not provide DoD, as well as the civil-

ian agencies, with the tools to be effective buyers and managers of services. "In DoD," he continued, "most of our education, training, and focus has been on buying major systems. That's where the big bucks are ... The reality is that we are now buying more services dollar-wise than we are buying systems — we are a service economy in DoD just like the broad American economy has become a service economy."

He recognized the need for a more aggressive and comprehensive training and education program, to give people the tools to do different kinds of analysis and make a variety of business decisions.

"If people are not given the opportunity to learn about these strategies, to understand what they mean, it's not going to mean a lot to them when you go through the analytical process. They are going to be looking for a solution that makes immediate sense or satisfies an immediate concern, not looking at the bigger picture."

The Bottom Line

In closing, Soloway emphasized that understanding marketplace limits and the business decision process have both changed dramatically because of the large number of competitions. "That means ... we have to be even more disciplined in how we structure our acqui-

sitions, our strategies, and our competitions to ensure that those high-performing companies want to play.

"The issues we face here are huge," he said, "because of the commitment DoD has made to competitive sourcing." As DoD goes down this path, Soloway said that the Department has to do a far better job providing education and training tools for our workforce; to do it right whether we decide to stay in-house with work, go to contract, or some mix therein. The bottom line, said Soloway, is "competitions that work, competitions that are fair, and competitions that really drive us to optimize in ways that serve a broader interest in DoD and the mission we are here to serve, not just our local interest."

While a lot of aspects of AR within DoD are being improved and a lot of new strategies and technologies are being implemented, one thing is certain: Strategic Sourcing is a program with great potential, a program that paves the way toward making the A-76 process more employee-friendly.

Editor's Note: The findings of the Seminar will be published in the maiden issue of the "Forum for Enterprising Government," CPPE's follow-on publication to the "Outsourcing & Privatization Forum."

A T T E N D

The First Annual Summit on Strategic Sourcing and Partnering for Optimum Success: New Thinking Regarding Federal Outsourcing & Privatization

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Leveraging Diversity

Baseball, Probability, and Hiring a Better Workforce

DAVID A. BRESLIN

So you're a brand new Program Manager (PM) and one of your first orders of business is to staff the office. You obviously want your program to be successful and, therefore, you want to hire only the best and brightest employees available. What can you do to help ensure that you actually hire the best and brightest? Think *diversity*.

EEO and the Law

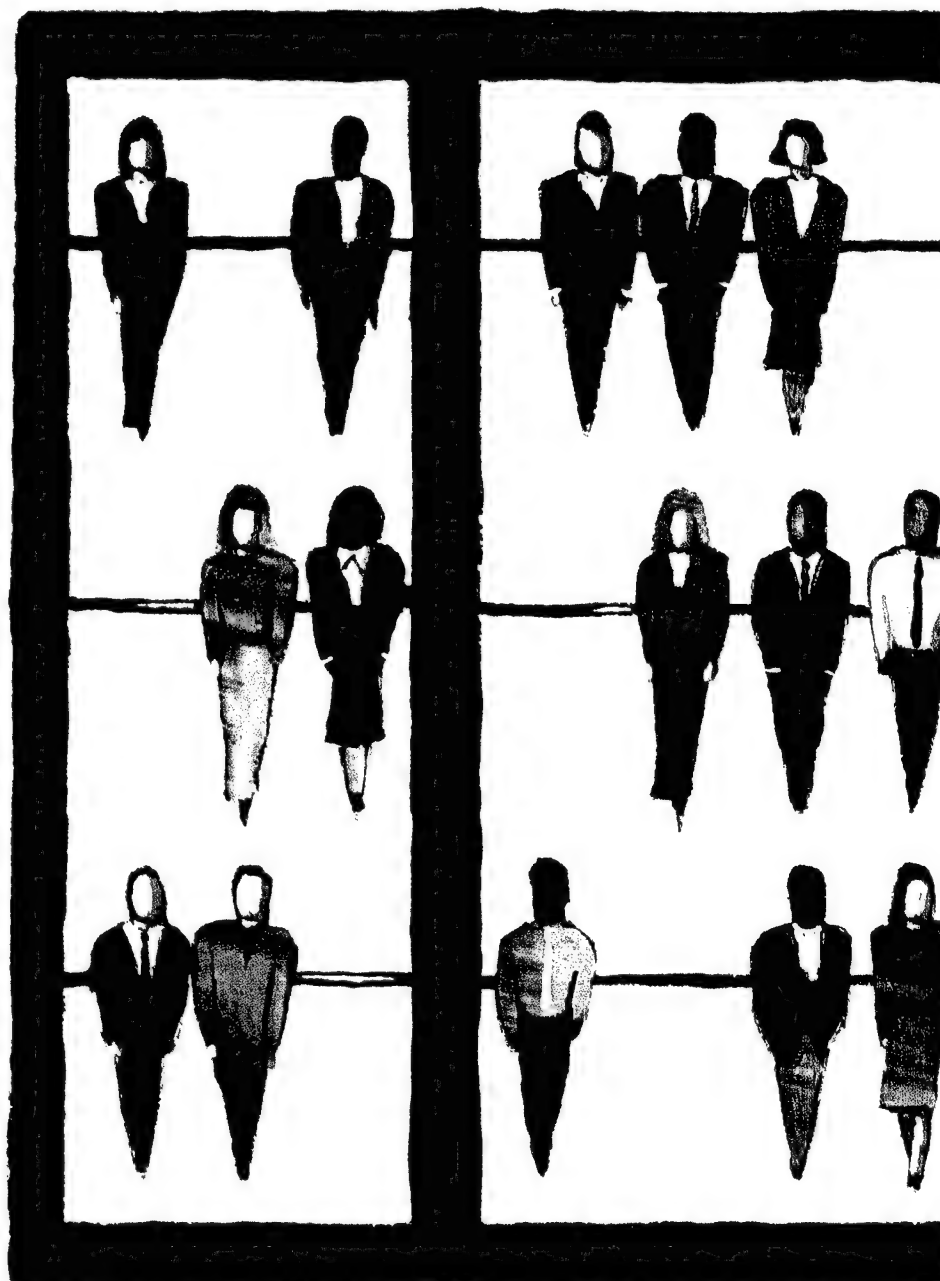
Federal laws and policies concerning Equal Employment Opportunity (EEO) prohibit job discrimination based on race, color, religion, sex, national origin, age, disabilities, and even protected genetic information. Other forms of discrimination, or what might be referred to as *employment exclusion*, that fall outside of law or policy are, therefore, generally permitted. Viewed conversely, federal laws concerning EEO, like many laws, establish minimally acceptable behavior for those responsible for employment actions such as hiring and firing.

To date, many laws establish minimally acceptable behaviors for practically all functions of a program office such as EEO, contract management, and fiscal management. Taking fiscal management as an example, significant benefits are to be derived from sound fiscal management. Therefore, in order to take advantage of those benefits, program offices will operate at a point well above the minimally acceptable behavior established by law.

What about EEO or diversity programs? Are there significant benefits to diversity programs? And if there are significant benefits, are program offices in the habit of taking advantage of those benefits by operating at points

well above the minimally acceptable behavior established by policy or law?

In fact, significant benefits are to be gained from workforce diversity that should cause the PM to think well be-



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yond minimally acceptable behaviors.¹ Unlike the benefits of sound fiscal management, however, the benefits of workforce diversity to the program office often are not easily recognized.

A Mathematical Demonstration

John Allen Paulos, the author of *Innumeracy* and other books, has made a small fortune telling Americans just how little they really know about mathematics and the negative effect this has on just about everything Americans do.² He has also suggested that the level of readership of any work is inversely proportional to the number of mathematical equations contained in the work. (In light of that view,

mal probability curve accurately describes the natural variation of things encountered on a daily basis such as the diameter of machine screws, the time at which the newspaper arrives in the morning, or the quality of job applicants seeking employment. Just like the distribution of grades on a high school algebra test, the quality of a number of job applicants will have a certain *mean* and *standard deviation* and can be readily depicted using a normal probability curve.

So, let's say that we advertise for 10 positions in our new program office and 100 DoD candidates submit applications. Obviously, we only want to select employees possessing the objective attribute *Best and Brightest*. If these 100 candidates

Now let's say we decide quite arbitrarily that we will only consider those DoD candidates who are also Navy employees (say, 50 of the original 100 applicants). And let's further assume that the 50 remaining candidates are also evenly distributed along the *Best and Brightest* continuum (Figure 2).

What effect does this have on the quality of the 10 candidates we hire? Again, using standard statistical methods, it can be shown that the 10 best candidates ultimately hired (now the top 20 percent of the population, falling to the far right of the curve) have an average *Best and Brightest* measure of only 1.35, or 1.35 standard deviations above the mean — a reduction of 23 percent!

Clearly, what this 23 percent reduction translates to in terms of workforce performance depends upon what was meant originally by *Best and Brightest*. Perhaps thinking will be less innovative. Perhaps acquisition strategies will be less sound. Perhaps relations with the contractor will be less harmonious. Regardless of what *Best and Brightest* really meant, the result is that the more capable workforce was not selected.

What's true for arbitrarily excluding non-Navy candidates from consideration for reasons other than ability is also true for arbitrarily excluding any group from consideration: *the resulting workforce is necessarily of lower quality*. Stated statistically, the odds of hiring superstars increase as the size of the population under consideration increases.

Lessons from Major League Baseball

As cautioned by logicians, arguments by analogy should generally be avoided.⁴ Nevertheless, a striking lesson is to be learned by the integration of major

Not a single reader of this article can claim unequivocally that discrimination based on race, sex, religion, age, and so on, never takes place. When it does take place, not only is the law being broken, but the resulting quality of the workforce and potential success of the organization are being undermined in a very significant way.

the mathematics here is kept to a minimum.)

The benefits of diversity can be demonstrated mathematically using the normal probability curve, commonly referred to as the *bell curve*. The nor-

are normally distributed along a continuum known as *Best and Brightest*, they can be depicted using a normal probability curve (Figure 1).

Using standard statistical methods, it can be shown that the 10 best candidates ultimately hired (the top 10 percent of the population, falling to the far right of the curve) have an average *Best and Brightest* measure of 1.75, or 1.75 standard deviations above the mean.³



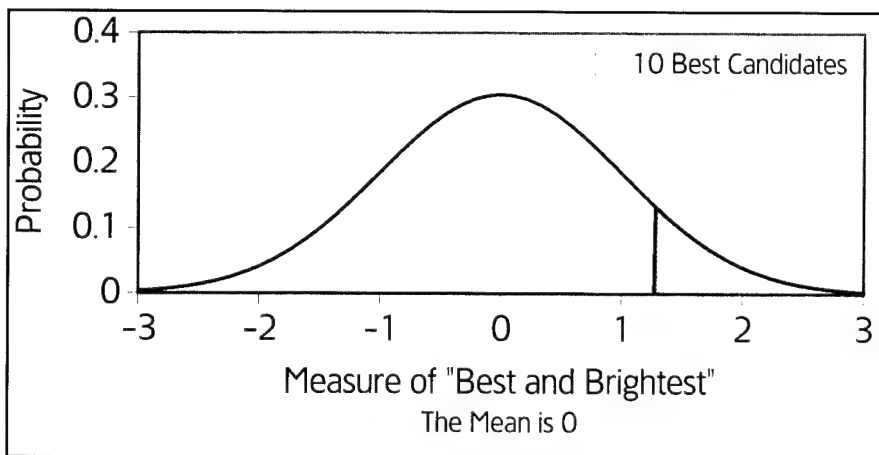


FIGURE 1. **Distribution of 100 Candidates**

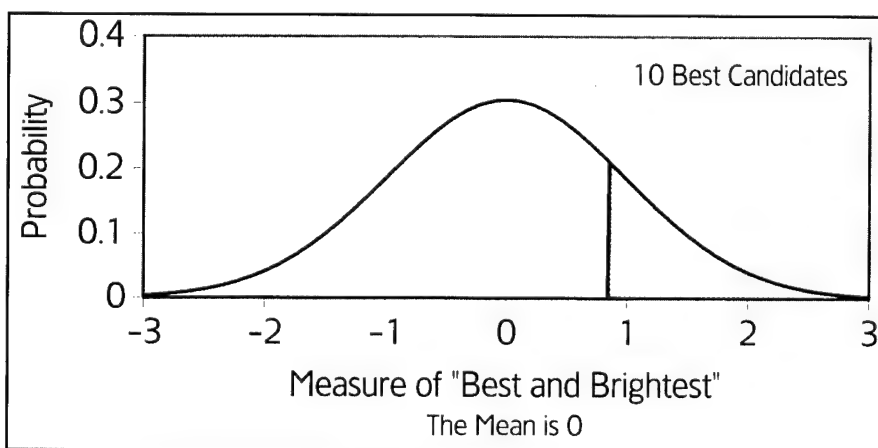


FIGURE 2. **Distribution of 50 Candidates**

league baseball that demonstrates the mathematical principle quite well.

Why look at major league baseball or sports in general? Sports such as baseball deal habitually with highly objective performance measures such as player statistics and the number of wins and losses by a team. Sports such as baseball pit large numbers of players against large numbers of players and are, therefore, open to valid statistical analysis. So, sports are somewhat unique in that they can shed an objective light on the positive effects of workforce diversity.

Up until the 1940s, 20th century major league baseball was not integrated. However, beginning in the 1940s that barrier began to fall very slowly and very unevenly. One result of the slow pace of integration is a wealth of data concerning the benefits of diversity to the level of play. The data clearly show that those

teams that integrated earlier gained a definite offensive and defensive advantage and generally outperformed those teams that integrated later. The lesson from baseball is quite clear: diversity improved the overall quality of the workforce.⁵

The exact same effect was witnessed when, after years of segregation, major league football was reintegrated between the late 1940s and the early 1960s. As with baseball, the reintegration of major league football was slow and uneven. The teams that failed to integrate in a timely manner found themselves to be at a great disadvantage.⁶ With little effort, similar examples can be drawn from numerous other sports as well.

The lesson from major league baseball and its applicability outside of the ballpark is quite clear and provides a real-life demonstration of the mathematical principle of normal probability. Why we

needed (and still need) laws to enforce behavior that has such obvious merit can only be explained by the likes of John Allen Paulos.

Current Forms of Employment Exclusion

For whatever reason, DoD exhibits a propensity toward excluding large portions of the workforce from consideration when hiring. For example, the areas of consideration on job announcements are often limited to *DoD Only* or *Navy Only* (as in the earlier mathematical demonstration). Job series can be overly specific; moreover, to cut down on the cost of Permanent Change of Station (PCS) moves, geographic restrictions are commonly applied.

Additionally, many agencies and personnel specialists rely heavily upon standard *Knowledge, Skills, and Abilities (KSA)*, such as *Ability to Communicate Orally and in Writing*. Although many times KSAs are an absolute necessity, we should keep in mind that oftentimes they contribute to the exclusion of otherwise outstanding candidates for whom communication poses a challenge or English is a second language.

In addition, KSAs often require prior experience with specific systems. Again, KSAs can be legitimate. However, they can also be unnecessary and, therefore, exclusionary in nature. The question to be asked here is whether the specifications contained within a job announcement are truly relevant.

Some methods of exclusion are even officially sanctioned and unavoidable. For example, with some exceptions, the merit promotion system requires employees to sit *in grade* for one year before becoming eligible for promotion. Although it may be a good rule of thumb for employees to spend a certain amount of time *in grade* to mature before advancing, such restrictions occasionally impede superstars from working at their full potential and to the benefit of the organization.

Finally, it's probably safe to say that not a single reader of this article can claim

unequivocally that discrimination based on race, sex, religion, age, and so on never takes place. When it does take place, not only is the law being broken, but the resulting quality of the workforce and potential success of the organization are being undermined in a very significant way.

In the mathematical example cited earlier, the significant effect on the quality of the workforce by arbitrarily excluding 50 percent of a population from consideration was demonstrated. Taking all of the above exclusions together, however, it is easy to see that well over 50 percent of potential applicants are routinely excluded from consideration. The effect this has on the potential quality of the workforce can be dramatic.

The bottom line is that all types of arbitrary exclusion contribute to lowering the overall quality of the workforce. Therefore, any barrier that might prevent the inclusion of any person or group should be vigorously challenged.

Going for the Win

The success of the PM arguably depends heavily upon the overall quality of the workforce. As demonstrated mathematically, the overall quality of the workforce is lowered any time a group is arbitrarily excluded from consideration. Stated conversely, the overall quality of the workforce is increased by the inclusion of more groups.

The positive effect of this inclusion on overall quality can be quite dramatic. So, a program office that operates strictly in accordance with the minimally acceptable behavior required by law or policy is probably shortchanging itself and its customers by failing to tap underused or even unused resources.

What can the PM do? The PM can set the course that takes the program office to where it is operating at a point well above the minimally acceptable behavior required by law and policy. The PM can truly embrace diversity by challenging overly restrictive requirements in the hiring process such as those re-

lated to area of consideration, series, and KSAs. Furthermore, the PM can work toward creating a work environment that is more attractive to more groups of potential employees.

The point to keep in mind, however, is that diversity programs are not something with which PMs should merely comply. Rather, in order to acquire the most capable workforce, diversity programs should be leveraged to the fullest extent possible.

Editor's Note: The author welcomes questions or comments on this article.

**A program office
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failing to tap
underused or
even unused
resources.**

Contact him at BreslinDA@navsea.navy.mil.

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C-17 Globemasters Have Bright Future Says Top Acquisition Leader

LT. COL. ED MEMI, USAF

CHARLESTON AIR FORCE BASE, S.C. (AFPN) — The “godmother of the C-17” paid a visit to Charleston Air Force Base, S.C., to fly in the aircraft and meet with aircrews and maintainers.

The godmother of the C-17, as she jokingly calls herself, is Darleen A. Druyun, Principal Deputy Assistant Secretary of the Air Force for Acquisition and Management. She is the Air Force’s top acquisition official.

“I’ve been associated with the C-17 program since it went into development in 1981. I’ve never had the opportunity to fly in a C-17, and I thought it was about time that I came down to the first C-17 operational base to see the capabilities of the airplane firsthand,” she said.

Druyun flew in a C-17 to the 2,300-acre North Auxiliary Airfield and saw a demonstration of the aircraft’s ability to airdrop, land on short runways, and its maneuverability. She also flew in the Boeing C-17 simulator and saw an aerial refueling.

“I found this very helpful when defending our budget to Congress to be able to talk firsthand about my own experiences, flying with the crew and talking to the maintenance people, and understanding what the challenges are in the program and what they like about the program. There is always room for improvement. It was a good way for me to better understand some of the issues associated with the C-17.”

The C-17 has established 22 world records in aviation and has a great future, according to Druyun. “Right now, we are on contract to buy 120 C-17s. The Air Force clearly needs to buy more C-17s when you look at the million ton miles per day that the CINC [commander in chief] is responsible for transporting,” she said.



Darleen A. Druyun
Principal Deputy Assistant
Secretary of the Air Force for
Acquisition and Management

"We are doing an analysis of what the real number should be, and it is going to clearly show that we are going to have to buy more than 120 C-17s. When you look at the ease of maintaining this airplane and its reliability, this airplane is going to be in our inventory, my guess, well beyond 40 years."

Although the C-141s are leaving Charleston this month, the aircraft may be around a bit longer than expected.

"We do have a shortfall in the area of airlift, particularly with the retirement of the C-141s. As part of our budget deliberations, we are looking at trying to extend the retirement of some C-141s to try to fill out the bathtub," Druyun said.

"We are not even able to make today's 49 million ton mile per day requirement until we deliver all C-17s and accomplish some projects on the books to improve our fleet of C-5As and Bs, which has not yet been authorized by Congress."

Air Mobility Command wants to improve the C-5 fleet by funding a re-engine program, implementing a reliability enhancement program, and other avionics improvements. "Then and only then, we might eventually fill out that bathtub."

But the big "if," is that ton mile requirements are expected to increase.

"What the latest analysis, to be released in September, will show is that we need to haul more than 49 million ton miles per day."

Druyun doesn't believe the day will ever come when the Air Force can concentrate on buying and flying a single airlifter. "I still believe there needs to be a mix of airlifters," she said. "The C-17 fulfills a very special niche that we have. When you look at what needs to be hauled in a theater, then you really need a C-130J."

Druyun said they're trying to modernize the C-130 fleet and that they have the requirement to buy additional ones as well as the stretched versions of that aircraft.

Editor's Note: Memi is with the 437th Airlift Wing Public Affairs Office, Charleston AFB, S.C. This information, released by the Air Mobility Command News Service, is in the public domain at <http://www.af.mil/news>.

Cohen Reports to Vice President

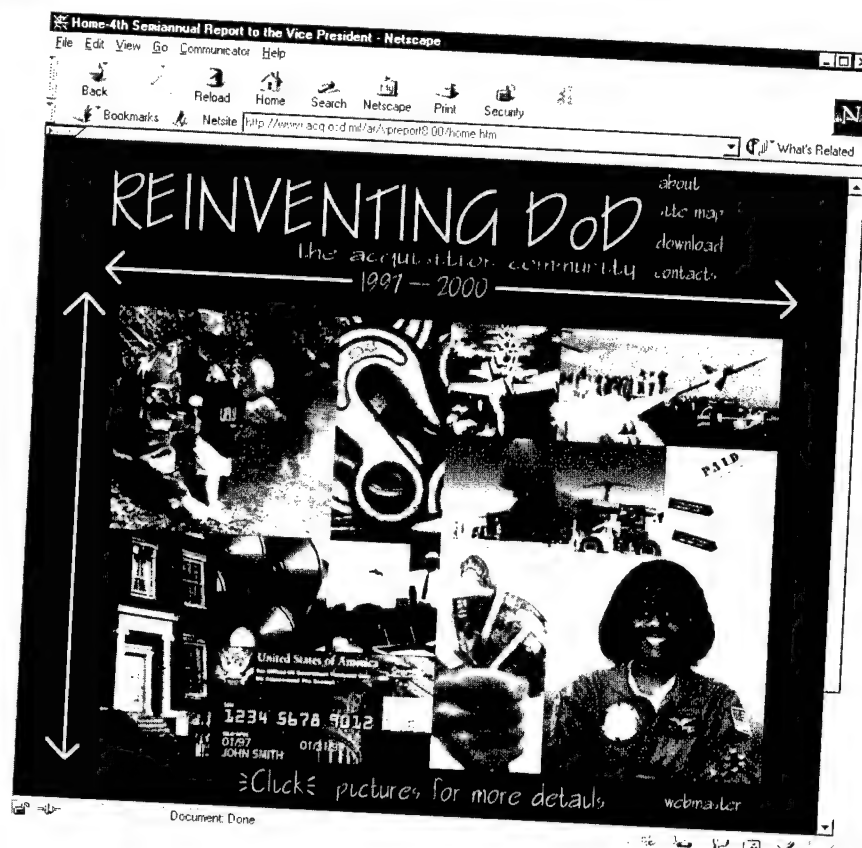
DoD Year 2000 Acquisition Goals

Secretary of Defense William S. Cohen reported to the Vice President Aug. 8 on DoD's progress toward achieving Year 2000 Acquisition Goals. The report, fourth in a series of six semiannual reports, was written in plain language to provide the American public a clear picture of progress in reinventing Defense Acquisition.

In his fourth report, Cohen outlined the Department's three-year goals and actions taken. The three-year goals were founded on the objectives of *Delivering Great Service*, *Fostering Partnership*, and *Internal Reinvention* that the Administration set forth in the Blair House Papers. Cohen's report reflected a Department that is continuing to modernize its forces, use its resources more efficiently, and supply the nation's warfighters and peacekeepers with the goods and services they need — better, faster, and cheaper.

"As requested by our warfighters in 1996, we have enabled the Department to spend \$60.3 billion in 2001 to modernize its forces. This funding was made possible by our more efficient use of resources. As we enter the new millennium, we are proud of our achievements and rededicate ourselves to further achievements in the years to come."

These excerpts from the report present only the three-year goals and actions taken to date. To view the accompanying charts that measure DoD's progress, download the entire report at <http://www.acq.osd.mil/ar/vpreport8-00/summary.htm>.



DELIVERING GREAT SERVICE

New Weapons in Less Time

OUR THREE-YEAR GOAL:
Deliver new major defense systems to the users in 25 percent less time.

We are delivering major new defense systems to the warfighter in 27 percent less time, exceeding our goal of 25 percent.

During the Cold War, the threat environment was stable and predictable. We often let program schedules slip to spread out system costs or to further enhance system performance. Today, the threat environment is more fluid and we have adapted by becoming much more flexible to meet warfighter needs faster. By fielding new systems in less time, we are providing our warfighters with the

systems they need, when they need them, and at reduced cost.

To achieve this reduction, we structure programs from their inception for shorter acquisition cycle times (i.e., the time between starting a new program and making initial delivery). We then closely monitor cycle time performance at every stage, from program approval and budgeting to delivery to the warfighters. We emphasize near-term requirements and the availability of proven technologies when authorizing new programs. This allows us to satisfy warfighter needs incrementally, infusing new technologies as they become available.

Our goal is to reduce the cycle time of new programs by 25 percent starting

from a 1992 baseline of 132 months (the average cycle time of currently active programs started prior to 1992).

Better Logistics Support Services

OUR THREE-YEAR GOAL

To achieve visibility of 90 percent of DoD materiel assets while resupplying military peacekeepers and warfighters and reducing average order-to-receipt time by 50 percent.

We are actively tracking 94 percent of DoD materiel assets and have reduced average order-to-receipt time for new purchases by 61 percent.

Our primary job is to supply the warfighters with the products they need, when they need them. To this end, we have improved our management of logistics information and inventories. We have integrated existing logistics information systems with new information systems. These systems give us access to timely, accurate information on the status, location, and movement of units, personnel, equipment, and supplies.

We are using information systems to reduce delivery times by relying on electronic, rather than paper, transactions with our vendors. We are further reducing delivery times by using commercial practices, such as contracting with vendors to provide direct support, and using faster transportation services to respond more quickly to customer orders. These steps have enabled us to meet the warfighters' needs more rapidly, improving military readiness, while reducing inventory and delivery costs.

Simplifying Buying of Goods and Services

OUR THREE-YEAR GOAL

Simplify purchasing and payment through use of purchase card transactions for 90 percent of all DoD micropurchases while reengineering the processes for requisitioning, funding, and ordering.

We have simplified purchasing and payment through the use of purchase cards for 92 percent of all DoD small purchases, while reengineering our business processes for requisitioning, funding, and ordering.

Only by continuing our education can we avoid creating a new [acquisition and procurement] system as rigid as the old.

In the past, when we wanted to order a product for less than \$2,500 (micropurchases), we used a form that required several rounds of review and approval. This bureaucratic work added significantly to the real cost of the product and to the time it took to receive the order.

Today, we use the Government Purchase Card in much the same way the public uses commercial bank credit cards to purchase items. Our goal is to increase our use of the Government Purchase Card for micropurchases, thus making our ordering and buying processes more efficient and cost effective.

The Army estimates that it saves \$92 per transaction when supplies and services are bought with the Government Purchase Card instead of a purchase order. This money can be used to equip our warfighters rather [than] to do unproductive paperwork.

We removed bureaucratic roadblocks to using Government Purchase Cards for micropurchases in all but a few special cases. We are working to limit these special cases to a bare minimum. We reorganized our traditional requisition and ordering system to match these new conditions. In 1997, we used Government Purchase Cards for 5 million micropurchases. We increased that to over 7 million in 1998, and to just short of 9 million in 1999.

Educating and Training the Defense Acquisition and Technology Workforce

OUR THREE-YEAR GOAL

Create a world-class learning organization by offering 40 or more hours annually of continuing education and training to the DoD acquisition-related workforce.

We are creating a world-class learning organization by offering 40 hours or more of continuing education and training to the DoD acquisition and technology workforce every year.

In the last few years, we have undergone dramatic changes in how we buy goods and services. We made these changes to facilitate better, cheaper, and faster support to the warfighters. Many of these changes are based on best commercial practices. To help our buyers adjust to this new environment, we offer quality education and training that includes not only a description of the new practices, but also an understanding of why these changes are being made. Such training must continue throughout our careers to ensure that we stay current with best commercial and government practices. Only by continuing our education can we avoid creating a new system as rigid as the old.

We plan to meet our goal by having our people take 40 hours or more of continuing education annually. Currently, most of this training takes place in traditional classrooms. We are, however, rapidly expanding our use of computing and telecommunications technology to provide more cost-effective and timely training via satellite and the Internet. Our acquisition and technology workforce also now takes training in other fields to expand their expertise and certifications in the commercial business environment. This opportunity will make them better rounded in their daily duties, as well as enhance their job satisfaction.

FOSTERING PARTNERSHIP

Modernizing Defense

OUR THREE-YEAR GOAL

With no top-line budget change, achieve annual defense procurement of at least

\$54 billion toward a goal of \$60 billion in 2001.

With no top-line budget change, we have increased funding for defense modernization by 24 percent above the FY 1997 baseline of \$44.3 billion with the appropriation of \$55 billion for procurement in FY 2000.

After the Cold War, the dramatic reduction in defense spending had a particularly significant impact on the buying of new weapons and equipment. At the time, our inventory of newer weapons was sufficient to meet the needs of our reduced troop levels and older weapons and equipment were retired. Over the intervening years, our budget for buying new weapons was further reduced by spending on unplanned events such as regional conflicts, peacekeeping, and humanitarian missions.

Today, our defense inventory is showing its age. As the level of technology used by our potential adversaries increases, we need to continue fielding new weapons and equipment to maintain our military edge. By fully implementing recommendations from the Quadrennial Defense Review and continuing with the Defense Reform Initiative, we were able to substantially increase procurement funding. These recommendations included better planning for operation and support costs; further cutting our troop levels; reforming our business practices; and streamlining our acquisition and logistics workforce.

To meet our goal of \$54 billion in annual procurement funding, we have made great strides in reducing cost growth in our operations and maintenance accounts. This has increased the money available for modernization investments.

Over the last few years, we have consistently increased procurement funding dedicated to the modernization of our operating forces.

Partnering with Communities

OUR THREE-YEAR GOAL

In the spirit of fostering partnerships and community solutions, DoD will

complete disposal of 50 percent of the surplus property baseline and privatize 30,000 housing units.

We have divested 123,727 acres of surplus real estate and privatized 3,672 housing units, while minimizing potential disruptions by fostering partnerships and community solutions.

As the owner of hundreds of military facilities and thousands of apartments and houses in the United States, we are the nation's largest landlord. Today, we are divesting ourselves of land we no longer need and are inviting private companies to build and operate our housing units. These actions will save money and rebuild our local and base communities while improving the quality of life for all concerned.

On the recommendation of the bipartisan Base Realignment and Closure Commissions, we are closing 97 major military bases and restructuring 55 major bases. We have already saved \$14 billion from these and related actions. We are working closely with local communities to minimize the negative consequences of these closures by redeveloping closed bases as centers for job creation and community activities and by providing communities with technical assistance and grants to convert these properties to sources of new jobs.

We have overcome numerous legal, financial, and environmental hurdles to achieve our goal of transferring excess real estate. We are continuing to work with Congress to write new laws to ease this task in the future. We regularly review past property transfers to make sure they were successful. Moreover, we are reaching out to local communities to hear their concerns. Through this partnership, we are reusing excess government real property more efficiently, and producing cost savings that can be put back into force modernization and readiness.

We currently own about 300,000 family apartments and houses in the United States, of which more than 60 percent are in need of renovation or replacement.

We have invited the real estate industry to apply commercial practices to help us to improve these properties while saving the taxpayer some of the \$20 billion these repairs would have traditionally cost.

In the coming years, we will continue our efforts to cut our excess land holdings in half and privatize thousands of apartments and houses.

Decreasing Paper Transactions

OUR THIRTY-YEAR GOAL

Decrease paper transactions by 50 percent through Electronic Commerce and Electronic Data Interchange (EC/EDI).

We have surpassed our goal for electronic commerce and electronic data interchange by decreasing paper contracting transactions by 63 percent.

By increasingly relying on electronic transactions, we are reducing the cost and burden of paperwork; providing more timely payments; minimizing repeated requests for the same information; making DoD information more accessible; improving data accuracy; and making communications with industry easier and faster.

We are integrating our electronic contracting, program management, and logistics support systems to achieve further efficiency benefits. These systems are helping us reduce the time and cost to do our job and thereby provide better support to the warfighter. In addition, the business efficiencies of digital transactions will significantly reduce the total costs of owning, operating, and maintaining our weapons and equipment.

Reducing Toxic Pollution

OUR THREE-YEAR GOAL

Reduce total releases of toxic chemicals by a further 20 percent.

We have surpassed our original goal and decreased our total release of toxic chemicals by 43 percent since 1995.

In 1994, we began to submit annual reports to the Environmental Protection Agency on our use of a number of toxic

chemicals. In 1994, we released or shipped from military bases 10.6 million pounds of these chemicals. In 1995, we reduced this amount by 36 percent to 6.7 million pounds. We did this by adopting a strong pollution prevention program and by reducing polluting activities.

We found new products and processes that do not rely on toxic chemicals and substituted them where possible. We worked in partnership with industry to reduce or eliminate toxic chemicals used in manufacturing weapons. And we made it much easier for the defense industry to find alternatives to using toxic chemicals.

By decreasing these toxic chemicals, we improve the environment for everyone. Moreover, we avoid spending money on the extra paperwork, special handling, and disposal that using toxic chemicals necessitates. Minimizing the use of toxic chemicals in manufacturing weapons also reduces the use of toxic chemicals on military bases that operate, maintain, and repair the weapons.

We surpassed our original goal to reduce our 1995 baseline from 6.7 million pounds by 20 percent to 5.4 million pounds in the first year of the effort. As a result, we revised our year 2000 goal to 3.4 million pounds, a 50 percent reduction from the 1995 level.

DOD INTERNAL REINVENTION

Streamlining Our Workforce

OUR THREE-YEAR GOAL
Eliminate layers of management through streamlined processes while reducing the DoD acquisition-related workforce by 15 percent.

Streamlining our processes has made it possible for us to eliminate layers of management and reduce the DoD programmed acquisition workforce by 19 percent, exceeding our goal of 15 percent.

We resized our workforce to match our workload more efficiently for the 21st century. We cannot accept any inefficiency in our acquisition workforce when money for the warfighter is tight.

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We reengineered our processes, eliminating redundant work and simplifying procedures. We have given program teams more responsibility and [cut] unnecessary reviews and oversight. As a result of these changes, we are less bureaucratic and more professional, and we are continuously looking for additional opportunities to do business better, cheaper, and faster with fewer people.

Since 1989, we have reduced our acquisition workforce by over 50 percent.

Providing Effective Cost Accounting

OUR THREE-YEAR GOAL
Define requirements and establish an implementation plan for a cost accounting system that provides routine visibility into weapon system life cycle costs through activity-based costing and management. The system must deliver timely, integrated data for management purposes to permit understanding of total weapon costs, provide a basis for estimating costs of future systems, and feed other tools for life cycle cost management.

We have developed plans and are now implementing these plans for a cost accounting process that provides routine visibility into weapon system life cycle costs through activity-based costing and management.

The lack of a common, robust cost accounting process is one of the biggest obstacles to controlling and managing the cost of weapons and equipment for their useful life. Current accounting systems do not communicate with each other effectively, nor do they organize program information in a way that is most useful to management. As a result, they provide only limited insight into the total cost of buying, operating, maintaining, and disposing of our inventories.

Our goal was to develop a plan for a new, DoD-wide cost accounting process by the year 2000. To do this, we worked closely with outside consultants to assess current cost accounting initiatives. We talked to our customers throughout the DoD. The process must deliver timely, integrated data for management purposes to permit understanding of total weapon costs, provide a basis for estimating costs of future weapon systems, and feed other tools for life cycle cost management.

Our military departments and defense agencies have prepared implementation plans for the directed new cost accounting process. The plans have been approved and implementation of the new process began at the start of FY 2000.

Reducing Excess Inventory

OUR THREE-YEAR GOAL
Dispose of \$2.2 billion in excess National Defense Stockpile inventories and \$3 billion of unneeded government property while reducing supply inventory by \$12 billion.

We have disposed of over \$1.9 billion in excess National Defense Stockpile inventories and \$4.69 billion of unneeded government property, and are on track to reduce supply inventories by \$12 billion.

After the end of the Cold War, we found ourselves with a huge inventory of ma-

terials and supplies that we no longer needed. The National Defense Stockpile is a large inventory of strategic and critical materials set aside for a national emergency. The market value of the 1997 stockpile was \$5.3 billion. By using up, selling, or otherwise disposing of this inventory, we are recovering and reducing costs by billions of dollars that can be used for military modernization, operations, and maintenance.

Once proper authority from Congress is received, our goal is to dispose of \$2.2 billion in excess stockpile inventories by the end of the year 2000 without causing undue market disruption. Already, we have lowered the inventory by selling \$1.9 billion worth of excess stockpile items.

We have also reduced the amount of DoD property held by defense contractors. Government tooling or equipment is often loaned to contractors to perform tasks unique to defense work. Since the 1980s, the original value of this property has grown in spite of repeated efforts to curb growth. Our goal to dispose of \$3 billion worth by the end of the year 2000 was achieved one year ahead of schedule when we had disposed of \$4.69 billion worth of equipment. In the future, we will rely on commercial suppliers to

use their own equipment to reduce the amount of government property held by contractors.

Finally, we are realigning our supply inventories to match the current needs of our reduced troop levels. From a 1989 high valued at \$107 billion, we expect to reduce inventory levels by 48 percent to \$56 billion by 2000 or by \$12 billion since 1996. To reduce our supply inventory further, we are being more selective in what we buy and how we buy it. We are improving equipment reliability, decreasing order and delivery times, and bypassing government warehouses.

We are realigning our supply inventories to match the current needs of our reduced troop levels.

Minimizing Weapons Cost Growth

OUR THREE-YEAR GOAL

Minimize cost growth in major defense acquisition programs to no greater than one percent annually.

We are working hard to minimize cost growth in major defense acquisition programs to no greater than one percent annually.

Historically, we have overspent our original budgets for major new weapons. Some of this cost growth was necessary to deal with changes in technology. Schedule slips and inaccurate estimates of the original cost have caused additional cost growth. Our goal is to minimize cost growth during the development and production of major new weapons through greater program stability.

To ensure success in this area, we have taken a number of actions to control cost growth. We monitor major weapons programs on a quarterly basis with a focus on cost growth when making programming and budgeting decisions. We look closely at how much money programs are asking for in the program acquisition process. Finally, we measure our progress and study additional actions to keep cost growth at or below one percent.

DAU EXECUTIVE BOARD MEETING AT THE PENTAGON

Several members of the DAU Executive Board confer at their September 8, 2000 monthly meeting. The Executive Board, which replaced the Defense Acquisition Career Development Council, is the senior policy oversight body for DAU.

From left to right: Dr. Jerry Smith, Chancellor for DoD Education and Professional Development; Dr. Jim Edgar, representing the Army Service Acquisition Executive; Donna Richbourg, PADUSD (AR), Chairperson, DAU Executive Board; Marty Evans, representing the Air Force Service Acquisition Executive; Dr. Diane Disney, Director of Defense Civilian Personnel Policy, representing the Assistant Secretary of Defense for Force Management Policy; William Hauenstein, representing the Navy Service Acquisition Executive; and Air Force Brig. Gen. Frank J. Anderson, Jr., DAU Vice President and DSMC Commandant.





Central Contractor Registration Introduces New Data Elements

On Aug. 21, 2000, the Joint Electronic Commerce Program Office's Central Contractor Registration system introduced new data elements that will pave the way for the government migration to e-Commerce. These improvements will help the current CCR users get accurate information more quickly.

The CCR has a Web site where vendors wishing to obtain Department of Defense contracts provide general information about themselves. Over the past year, this database successfully captured more than 160,000 registrants as well as providing vendor financial information to the Defense Finance and Accounting Service to expedite payments to vendors.

Three new data elements are points of contact that enable companies to conduct electronic business with the federal government, establish a small business identification field, and create a credit card acceptance field. They can be viewed on the CCR public query Web site at <http://www.ccr2000.com>. In addition, the database of CCR vendors can now be simultaneously searched by geographic location, industry, and socio-economic factors.

The new POCs extend the use of CCR beyond payment information and into the e-Commerce procurement realm. The first POC, for Electronic Business, represents the vendor employee who will administer the approval process for vendor employees accessing DoD's e-Business systems. Next, the government business POC is the vendor's contracting/marketing representative who will need access to government, on-line bidding systems that are part of the DoD Business Operations application. Finally, the Past Performance POC is the vendor's designated person with approval to access and interact with the DoD Past Performance System.

"These new points of contact bring a level of personalization to CCR that move the system from a data repository to an integrated system with other DoD e-

Business applications," commented Scottie Knott, JECPO director.

Additionally, CCR now includes a data field, the Marketing Partner Identification Number, where vendors can set their own password for other partner applications. Current partner applications are the on-line bidding systems associated with DoDBusOpps and the Past Performance Automated Information System.

DoD is using CCR as standard business policy. Currently, all DoD contracting officers must ensure that a vendor is registered in CCR prior to making award. DoD disbursing officials then use the CCR electronic funds transfer data to make payments. Other federal agencies including the National Aeronautics and Space Administration and the Departments of Interior, Treasury, Transportation, Commerce, and Energy currently use the CCR.

"The new data elements in CCR help the government to continue to provide more useful information from vendors to our acquisition professionals," said Lisa Romney, CCR program manager.

The JECPO is organized under both the Defense Logistics Agency and Defense Information Systems Agency and is provided policy and oversight from the DoD Chief Information Officer.

The Defense Logistics Agency provides supply support, and technical and logistics services to the military services and to several civilian agencies. Headquartered at Fort Belvoir, Va., DLA is the one source for nearly every consumable item, whether for combat readiness, emergency preparedness or day-to-day operations.

Editor's Note: This information is in the public domain at http://www.dla.mil/public_info/ on the World Wide Web. For more information, call Maria Lloyd, (703) 765-6188.

Managing Security Assistance

Corporate Strategy

MAJ. CHARLES B. SHERWIN, JR., USAF

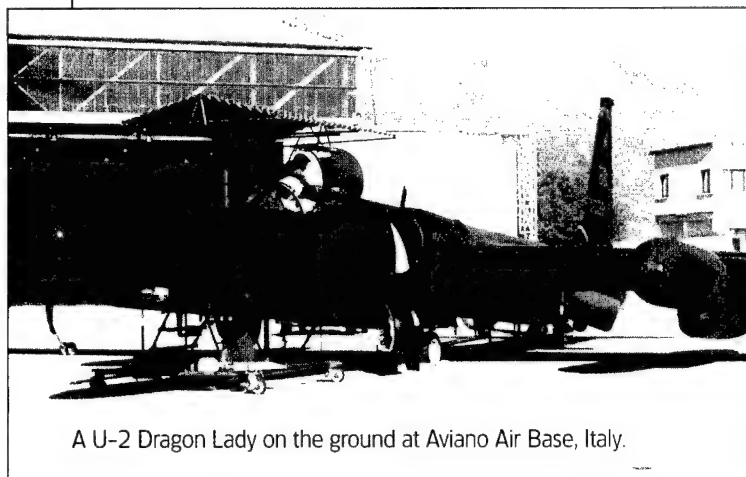
When executives create strategy, they project themselves and their organizations into the future, creating a path from where they are now

to where they want to be some years down the road. The Office of the Secretary of the Air Force, Deputy Under Secretary for International Affairs (SAF/IA) conducts Security Assistance business assigned to the U.S. Air Force (USAF) by the Office of the Secretary of Defense. SAF/IA is the organization of primary responsibility for central management, direction, guidance, and supervision of the Air Force portion of Security Assistance programs for foreign nations and international activities. A relatively flat geographically and functionally departmentalized organization, SAF/IA has a wide span of control.

This article focuses on the central management of Security Assistance in an era of willingness to abandon traditional processes in order to manage more efficiently, which is the essence of the Revolution in Business Affairs (RBA).

Currently, SAF/IA is in a dynamic state of change and uncertainty. As SAF/IA transitions out of the Foreign Military Sales (FMS) case management business

A member of the 31st Security Forces Squadron radios information to a patrolling unit as a heightened alert is maintained at an entry control point located by F-15s from the 494th Fighter Squadron, Royal Air Force Lakenheath, United Kingdom. The extra security measures ensure force protection for aircrews participating in the NATO-directed air strikes of Operation Allied Force, March 1999.



A U-2 Dragon Lady on the ground at Aviano Air Base, Italy.

at the headquarters level; as Direct Commercial Sales (DCS) become more prominent; and as SAF/IA struggles with quantifying its efforts in political-mili-

tary affairs, the organization must continue to execute its mission: enabling U.S. National Security objectives through Security Assistance.

From Reactive to Productive

Primarily, SAF/IA executes its mission using Security Assistance Managers throughout USAF. Typically, Security Assistance Managers comprise Country Directors at the Air Staff level; Command Country Managers at the Air Force Materiel Command (AFMC) level; and Se-

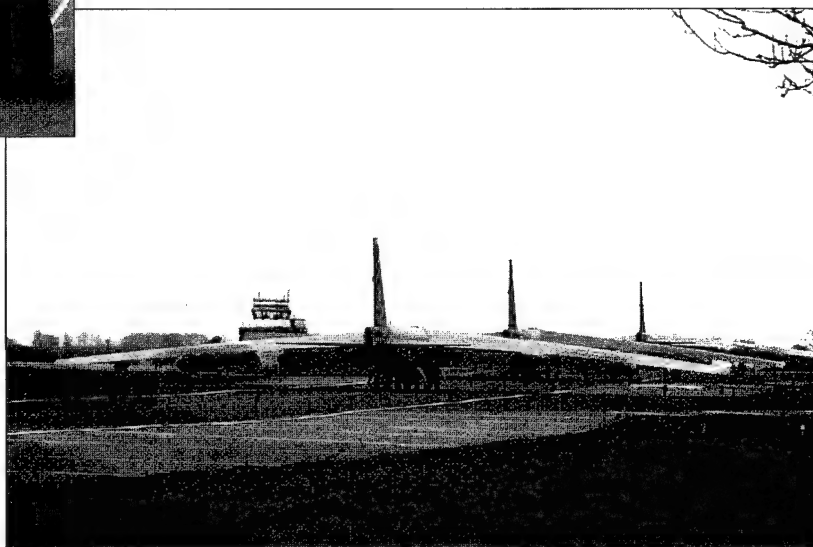
Sherwin is an Air Force acquisition professional, currently assigned to the Air Command and Staff College, Maxwell AFB, Ala., as a resident student. He holds B.S.E. and M.S.E.E. degrees in electrical engineering, and an M.S.B.A. and Ph.D. in Business Administration. He is also a graduate of APMC 00-1, DSMC.



An electronic countermeasures technician from the 81st Fighter Squadron, Spangdahlem Air Base, Germany, marshals an A-10 Thunderbolt into radar warning traps before a training flight. The sergeant is deployed to Aviano Air Base, Italy, supporting Kosovo-related operations.



A view of a Royal Netherlands Air Force F-16A Falcon as it takes on a fuel from a 100th Air Expeditionary Wing KC-135R Stratotanker. While patrolling the skies over Kosovo during NATO's Operation Allied Force, the F-16A is armed with AIM-19 missiles for self-protection and cluster bombs on the inboard stations to attack troop concentrations and nonhardened targets.



A B-52H, assigned to Barksdale Air Force Base, La., taxis for takeoff from Royal Air Force Fairford, United Kingdom. Elements of the 2nd Bomb Wing deployed to United Kingdom in support of 2nd Air Expeditionary Group in place at RAF Fairford to support NATO operations in the former Yugoslavia.

Security Assistance Program Managers (SAPM), Case Managers, and Line Managers in the field. Each foreign country or international program is assigned an SAF/IA Country Director to oversee that customer's overall Security Assistance program. Each case or action, including all FMS, is assigned a Case Manager and one or more Line Managers. Cases that are weapon system-specific or require integration and coordination efforts of multiple commands or product centers are assigned an SAPM.

Air Force Security Assistance Command is AFMC's organization that ensures effective and efficient support

of all Security Assistance and international activities assigned to AFMC. Air Force Security Assistance Training Squadron is Air Education and Training Command's organization that manages all USAF Security Assistance training for international customers. AFM 16-101¹ defines a Country Director as "the U.S. Air Force focal point for all issues involving his or her assigned country...." On a day-to-day basis, this can be an extremely "reactive" function by the very nature of the environment in which a Country Director works.

To further OSD's vision of a true RBA, this article advocates implementing a management philosophy (already in place throughout industry and other parts of the Air Force), to move the Country Director out of a reactive operation mode and transition that person into a more proactive mode by doing work on the environment in which a Country Director thrives.

The Business Revolution

RBA was embodied in Defense Secretary William S. Cohen's 1997 order launching the Defense Reform Initiative. RBA philosophy is to "improve the DoD's efficiency now and fundamentally re-engineer for the long-term." For executives

to create an environment enabling RBA, they must first foster effective strategy and organizational efficiency. Asking three simple questions can do this:

- Where are we going?
- What is the environment?
- How do we get there?

Where Are We going?

Let's visit the needs and goals of the United States and International Defense community at large in the context of Security Assistance for SAF/IA. What does *Joint Vision 2010* say?² The document *Joint Vision 2010* describes the future direction of our joint warfighting forces based on the emerging operational concepts of dominant maneuver, precision engagement, focused logistics, and full-dimensional protection. Execution of these concepts depends on our ability to achieve and maintain viable relationships with our allies around the world, especially coalition warfighting partners.³

"Multinational Operations: It is not enough just to be joint, when conducting future operations. We must find the most effective methods for integrating and improving interoperability with allied and coalition partners. Although our Armed Forces will maintain decisive unilateral strength, we expect to work in concert with allied and coalition forces in nearly all of our future operations, and increasingly, our procedures, programs, and planning must recognize this reality"

The key, however, is for management to be able to maintain traceability to and from the Joint Vision 2010 concepts; to support the DoD strategic plan and strategic goals; to implement objectives; and finally, to implement capability packages. The challenge lies in defining investment objectives that are measurable and preferably quantifiable.

LESSONS LEARNED

Lessons learned from Kosovo operations suggest a demonstrated and diverging combat capabilities gap between the United States and its NATO coalition warfighting partners. While U.S. war-

fighters were flying one Air Order performing precision strikes day and night in all weather, NATO coalition warfighters were struggling to keep up flying another Air Order. Some countries like The Netherlands, for example, had already made investments to achieve the goal of precision strike. They were fortunate and were able to acquire capability in an accelerated fashion. Other nations found themselves in a less-than-enviable position.

Joint Vision 2010 makes it clear where SAF/IA should be going. The next task is to determine how to implement the concepts set out by the vision in an environment of uncertainty.

What Is the Environment?

Before determining strategies and employing management philosophies to achieve particular goals, it is necessary to analyze the internal and external environment within which SAF/IA operates. Introspection is important to this process. As mentioned at the beginning of this article, internally SAF/IA is transitioning out of the FMS case management business, recognizing its need for insight into DCS matters, and struggling with quantifying political-military efforts. Externally, SAF/IA must continue to understand changing social, economic, political, and technological developments in the world. Such external environmental considerations take the form of international competition, acquisition reform, and competition in both U.S. and foreign Defense Departments. These internal and external environmental developments not only affect SAF/IA as an organization, but the countries with which SAF/IA must maintain relationships now and into the future.

From DoD Goals to DoD

In a *National Defense* article,⁴ analysts contend that strategy must be plotted portfolio-style. The article suggests that just as companies manage their financial portfolios to achieve specific objectives, so should they also adopt a portfolio approach to managing other investments as well. In an *Acquisition Review Quarterly* article,⁵ Margaret Myers suggests an investment-based approach

for managing software-intensive systems. While the focus of her article is on managing software-intensive systems, the article also does an excellent job of recasting historical recommendations, in light of recent management reform legislation, by describing an investment-based approach that is applicable to all areas of the DoD. The proposed management approach recommendations are based on an analysis of various acquisition and development models, legislation, policy guidance, and best practices. The model suggests adopting an investment focus, defining investment objectives, and building an investment framework.

Focus

First, is the theme of adopting an investment focused? The theme is already well suited for and established in SAF/IA as it builds and maintains its international relationships around the world. Policy guidance demands that we, the DoD and especially USAF, employ the Total Package Approach (TPA). TPA is a means to ensure that an FMS customer is aware of all Total Ownership Cost considerations for a given weapon system. The key here is to develop a long-term investment focus in support of goals that span the life of the relationship, and not to deliver a "one time" product or weapon system and walk away. It appears to be a capital asset perspective that should strengthen our relationship with a country while at the same time extend U.S. National Security objectives.

Define Investment Objectives

Next, we must define investment objectives. A fundamental SAF/IA responsibility lies in assisting a foreign country to develop their Air Force with communication and political-military efforts at their greatest level of intensity. For DoD systems, the value of a capital asset should be measured in terms of its contribution to one or more goals of Joint Vision 2010 or the DoD Strategic Plan. The goal is to unilaterally develop requirements that subsequently translate objectives into capability packages that, when deployed, demonstrate measurable progress toward meeting both the countries' and DoD strategic goals.

INVESTMENT FRAMEWORK

Finally, we must build an investment framework. The decision to invest in a capital asset, both domestically and abroad, should initiate planning for an investment framework (business model) to manage that asset through its life cycle. This framework should include not only the operational and technical considerations that will define how the capital asset will be used and built, but also repeatable processes for updating the investment objectives, negotiating the scope of each capability increment, managing the risks, and measuring the outcomes. To this point, SAF/IA basically follows this approach model with varying degrees of success. The business model or management philosophy that is suggested here is that of portfolio management. This is a fundamental departure from how SAF/IA conducts central management for Security Assistance.

Portfolio Analysis

Portfolio Theory provides for a process to intelligently select capital assets under conditions of risk. Capital assets that have return and risk characteristics of their own, in combination, make up a portfolio. Portfolios may or may not take on the aggregate characteristics of their individual parts. Portfolio Analysis thus takes the ingredients of risk and returns for individual capital assets and considers the blending or interactive effects of combining assets. Portfolio Management is the dynamic function of evaluating and revising the portfolio in terms of stated investor objectives.

Every international relationship in which SAF/IA engages has to do with foreign states or international organizations investing in U.S. capital assets and resources. Unilateral relationships can be reflected in individual portfolios developed to meet investor objectives. As a number of portfolios are developed within a region, a regional division chief can create synergy within a region, or diversification, based on U.S. National Security objectives within that region.

The best example of this may be seen in the European Region. Each Country Director within the European Division

works unilaterally to continually evolve their individual portfolios with their respective country. Meanwhile, the Division Chief may work to influence countries in a multilateral relationship to create synergy within a group of portfolios such as the countries and portfolios that make up NATO. All of this is done with a keen eye toward advancing U.S. National Security objectives.

Annual Reports

Just as with any investor investing in a corporation, the health of that investment is communicated to the investor through the vehicle of the annual report. A corporation's annual report is standardized with a format consisting of a statement from the CEO, information about the company's product line or business, financial statements, and an independent audit assessment regarding the financial statements. As an investor, this is a most efficient means of evaluation.

An annual report can be developed for countries investing in Security Assistance with the United States through the annual Security Assistance Management Reviews (SAMR) chaired by SAF/IA. SAF/IA chairs an SAMR annually (AFM 16-101, 1.6.1.5).⁶ As we prepare and develop information for a country's SAMR, the Deputy Under Secretary for International Affairs, in a sense the CEO for USAF Security Assistance, can sign a general statement concerning the state and direction of a country's investment. This would provide leadership an annual "snap shot" of a country's portfolio (FMS and DCS inclusive) and allow them to suggest or develop investor requirements in a direction that is mutually desirable for both parties based on affordability and security objectives.

Next, the body of the SAMR report would provide detailed information on cases developed from the field with a financial status of how the USAF is executing case management. Finally, an audit report would be provided, at the conclusion of the SAMR report, to give both management and investor confidence that the information contained therein is correct and substantiated. This

notion of an annual report is an area where we can make great strides in improving the efficiency of how we communicate with countries investing in Security Assistance.

Final Thoughts

In conclusion, a more effective way exists for the DoD and USAF to conduct business and be more proactive in managing Security Assistance. The RBA is using Portfolio Theory to manage the process and an annual report that communicates to its shareholders the state and direction of capital asset investing conducted by a country in a relationship with U.S. warfighters. It is substantiated by policy and adopts a management practice/philosophy already in use. Greater efficiency may be gained as the DoD and USAF continue to establish both unilateral and multilateral relationships throughout the world.

Editor's Note: The author welcomes questions or comments on this article. Contact him at **Charles.Sherwin@Maxwell.af.mil**

END NOTES

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Innovative Acquisition

A Strategy to Excel with Performance Based Acquisition

JIM STEELMAN

What is Innovative Acquisition (IA) in the Program Executive Office, Tactical Missiles (PEO, TM), and why is it needed? Some background will help answer these questions. The concept of IA actually began with former Secretary of Defense William J. Perry's military specifications and standards reform initiative, outlined in the "Perry Memo" released in June 1994. The reaction to the memo from the PEO, TM family was probably typical of other acquisition personnel in the Army. Some felt this was just another leadership initiative and would quickly fade as leadership changed. After all, existing practices were producing weapon systems satisfying our customers, we understood and had confidence in our normal practices, and we believed we could continue to excel if given adequate funding and freedom to manage. It would be foolhardy to change something that seemed to be working so well!

Despite workforce skepticism, we pressed on with establishment of strategic objectives and implementation consistent with the Perry Memo. We performed a detailed assessment of existing programs, management practices, and where we believed we should go over the next 20 years. Our objective became world-class excellence in performance based acquisition of TM. We decided implementation should provide immediate, aggressive change to use performance based acquisition along the lines of commercial-like management practices. Although we had used perfor-



A U.S. Marine Corps Hornet comes in on final approach to the *USS George Washington*.

M2A2 Bradley Fighting Vehicle.



mance specifications for some components, we were inexperienced with performance specifications and commercial practices for major item acquisition or support.

Policy — A First Step

One of our first steps invoking change was to issue policy mandating that all requirements be performance based. Even the use of commercial specifications or standards required waivers unless contractors proposed them. The waiver process to obtain approval to continue existing prac-

tices required demonstration of exceptionally sound, business-based rationale. Relatively few waivers were approved. Approvals were normally restricted to program waivers needed to support ex-

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MGM-71 "TOW" (tube-launched, optically tracked, wire guided) missile system.

"We simply can not afford the expense and time to re-learn critical management lessons for which a PMO has already paid dearly."

The change from existing practices to commercial practices and implementation of the policy was controversial and in some cases strongly resisted. Implementation was sporadic since change generally became real for personnel only when new contracts were issued to replace legacy efforts. At the same time, our staffs were required to make fundamental change to use performance based methods; they were also faced with management of legacy programs, cul-



M47 Dragon Anti-Armor Missile system.

tural resistance from outside organizations, and reduced personnel and financial resources. This was a tough situation. Nevertheless, steady and sometimes spectacular progress was made.

Stuck On a Plateau

In January 1999, despite unwavering leadership by three successive PEOs, we found ourselves stuck on a plateau as we journeyed toward excellence in performance based acquisition.

We had notable successes in areas such as creation of performance specifications, teaming, automation, and other areas critical to performance based acquisition. However, the successes were frequently localized within specific Project Management Offices (PMO) and sometimes within elements of a PMO itself. The pace of change continued to be dictated by the rate of learning and slowed by the "not invented here" syndrome. We needed an "end run" to bypass resistance and avoid stagnation. The end run selected was the PEO, TM Innovative Acquisition Strategy for fiscal 1999. The goals of the strategy were: (1) establish common usage of a term which would strengthen the positive connotation of change; (2) transfer ownership of change



Multiple Launch Rocket System (MLRS)

isting multi-national agreements or to preserve existing advantageous business provisions such as pricing agreements. Other waiver approvals predominately

allowed use of a few, specific documents, with rationale based on safety, unique user requirements, or supportability needs.

from the PEO to PMOs; (3) raise the overall performance across the PEO to at least the highest levels demonstrated in individual PMOs; and (4) instill the practice of benefiting from lessons learned and expertise of others.

Goal 1 was addressed by use of the term "Innovative Acquisition" to replace the term "Acquisition Reform." The emphasis shifted from what was required to what was possible using individual judgment and good business sense as guides. This was not a new message, and renewed emphasis was critical since the message had never been accepted by many! Under Innovative Acquisition, efforts were renewed to place authority and responsibility at the right levels within the PMOs, where judgment could be applied directly to challenges.

Goals 2, 3, and 4 were addressed by creation of two highly visible focus areas: Demonstration Projects (DP), and Centers of Excellence (COE). Assignments for DPs and COEs are shown in Figure 1. Program laydowns, the principal method to provide insight to leadership, have shown notable successes in the first nine months of the IA strategy, particularly from the demonstration projects.

Demonstration Projects

Demonstration project assignments were based on one of the following two criteria. The first criterion is recognition of need for improvement by a PMO in a specific area. The second criterion, applicable when successful performance had already been demonstrated, is recognition that significant improvements or great potential for benefit are still achievable in a specific area across the PEO, TM. Excellence, not merely success, is our goal as a world-class organization.

CCAWS

The Close Combat Anti-Armor Weapon Systems (CCAWS) demonstration project on performance specifications has resulted in PMO and contractor joint generation and release of performance specifications for Improved Tube-launched Optically Tracked Wire-guided (TOW) Missile Acquisition Subsystem (ITAS) and Improved Bradley Acquisi-

tion Subsystem (IBAS). This accomplishment was critical to the ITAS contractor logistics supportability approach combining use of performance specifications with contractual incentives on readiness. In the process, CCAWS has substantially increased our understanding of the appropriate role of performance specifications in achieving best value for missile life cycle acquisition.

Javelin

The Javelin team has significantly improved their already successful use of electronic data under their demonstration on electronic data exchange. Javelin uses the Internet to link the PMO network with the Javelin Joint Venture (JV) partners' networks to manage the program using electronic data while protecting essential proprietary data of the JV partners. Javelin drawings, specifications, parts lists, engineering change data, contract data list items, and JAVTRAC logistics data are available electronically using the system. The Javelin team is now working to support Foreign Military Sales customers electronically and to complete three-dimensional data implementation on the missile, command launch unit, and training devices.

MLRS

The Multiple Launch Rocket System's (MLRS) Total Cost of Ownership Reduction effort successfully addressed five of the Top 11 hardware cost drivers identified in their initial goal setting process. For example, a Line Replaceable Units (LRU) Reuse program was established. The concept is to take high dollar LRUs, which are being removed from the M270s (1st generation launcher) during the M270A1 (2nd generation) re-manufacturing process, upgrade them to repairable status, and then provide these to meet current demands at a reduced cost to the soldier/user. The LRU Reuse program resulted in a cost avoidance of \$23 million over 10 years for MLRS.

AGMS

The Air to Ground Missile System (AGMS) Commercial Practices demonstration project focused on use of commercial plastic encapsulated microcircuits (PEM) in missile applications. Their

efforts complement the work of the PEO, TM Integrated Process Team on use of PEMs. These two efforts have worked cooperatively to prepare a best business practice governing acquisition, use, and risk mitigation of PEMs in missile long-term nonoperating storage.

ATACMS/BAT

The Army Tactical Missile System/Brilliant Anti-Armor Submunition (ATACMS/BAT) Technology Insertion demonstration has resulted in an affordable approach to achieve required performance in evolutionary BAT seekers through technology insertion and exercise of options within contracts.

Centers of Excellence

We simply can not afford the expense and time to re-learn critical management lessons for which a PMO has already paid dearly. Part of the solution was establishment of Centers of Excellence (COE). The COEs were assigned to recognize critical innovative acquisition areas in which a PMO had demonstrated exceptional performance, and to foster an improved culture under which sharing and using lessons learned is standard practice. We realized lessons learned were infrequently shared between PMOs, and when shared, were rarely embraced. However, there was an existing and highly successful practice of exchanging lessons learned, and best practices between individuals within our PMOs. Unfortunately, this practice functioned sporadically because use was limited to cases where there was mutual, personal recognition of competence or where personal friendships existed.

Through COEs, we sought to broaden use of this practice and to achieve broader recognition of exceptional competence, greater sharing of knowledge, and improved capability across the PEO. Each COE is expected to offer assistance to other PMOs, educate other PMOs on COE practices and results, and be the principal PEO, TM representative for matters related to their COE.

One positive aspect of the COEs resulted from a PEO-wide town hall meeting hosted by MLRS in which they explained

their successful use of Partnering. MLRS is also performing exceptionally as a pilot program for paperless acquisition. Their efforts have resulted in identification and resolution of numerous challenges that otherwise would have been resolved individually and at great cost by other PMOs.

AGMS achieved the first 10-year warranty within the PEO, TM with the Longbow multi-year production contract, and have made their experience available to other PMOs. This warranty's incentive is structured to encourage the contractor to improve missile reliability throughout production.

Javelin is conducting onsite demonstrations and tutorials to inform other PMOs of Javelin experiences on electronic data interchange. ATACMS-BAT has substantially advanced awareness and capability of modeling and simulation within the PEO, TM and hosted visitors from within DoD and academia.

Although not as dramatic as results under demonstration projects, the COE results have been within the initial expectations of the PEO, TM. After all, the ultimate COE product is cultural change affecting fundamental perceptions and practices of our people. Achieving benefits by leading PMO personnel to seek and apply knowledge from others' experiences continues to be a primary goal. The good news is that progress is being made. Our people are replacing their initial reluctance with a willingness to share and benefit from one another's experiences.

Staying the Original Course

Where is the PEO, TM going with the IA strategy in fiscal year 2000? We are staying the original course but revising leadership methods to increase the focus on changes in business practices. Clearly, there are significant unrealized benefits from the COEs. We will continue to encourage actions to overcome cultural resistance to use of best practices and lessons learned. No new demonstration projects have been assigned other than to the HYDRA 70 PMO, which was not a part of the PEO, TM family when the IA strategy was implemented.

Instead, greater emphasis is being placed on institutionalization of IA successes and refinement of business practices with our industry partners. We will address program concerns that resulted from initial application of performance requirements. Finally, we will work more energetically with industry partners to mitigate risks from industry restructuring, and to achieve a better balance of risks and benefits from performance based acquisition. For example, all PMOs are working action items to improve risk mitigation by improved relation of program risks to technical changes, to implement more appropriate incentive structures, and to ensure supportability of our weapon systems under performance based acquisition.

The ability to change quickly, effectively, and efficiently is a primary characteristic of world-class organizations. Experi-

ence with IA has improved the ability of the PEO, TM family to manage change as a world-class acquisition organization. This improvement alone may prove more valuable in the long run than the benefits already achieved by individual programs in our PMOs. To sustain this improvement, the PEO, TM leadership recognizes the need to frequently reinforce IA objectives and to re-energize efforts when we find progress lagging expectations. The IA strategy is meeting this need for the PEO, TM by enabling continuous improvement of tactical missile acquisition practices. Our customers can expect no change in the long tradition of fielding superb and affordable tactical missiles to the soldier.

Editor's Note: The author welcomes questions or comments on this article. Contact him at jim.steelman@msl.redstone.army.mil.

Gansler Gets First DAU Honorary Professor Award



The Honorable Jacques S. Gansler, USD (AT&L) received the first Defense Acquisition University Honorary Professor Award starting the new millennium. Air Force General Frank J. Anderson, Jr., DSMC Commandant, presented it to him as keynote speaker at the convocation of the Advanced Program Management Class 00-3 on September 11 in Howell Auditorium. The award is presented to distinguished guest lecturers for their valuable contributions to DAU's education program and defense systems acquisition management.

Depot Manufacturing Practices

Remaining Competitive with Private Industry

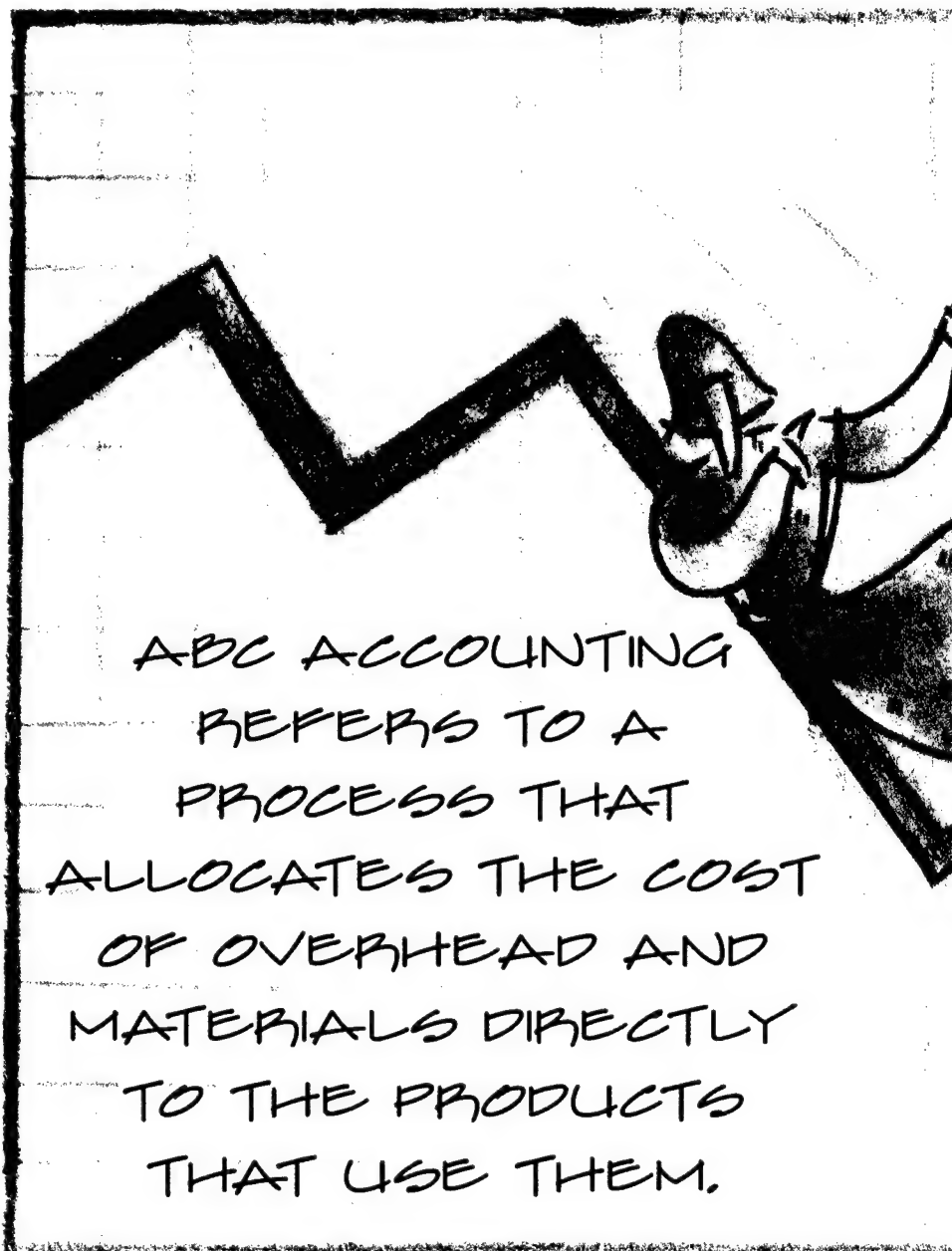
WILLIAM N. WASHINGTON

As depots attempt to become competitive in expanding their customer base and reducing their repair costs, they need to study their maintenance practices to determine which ones might better be outsourced and which ones they might want to expand. To that end, Activity Based Costing (ABC) may provide those insights. Over the past several years, it has become one of the chief tools for private industry in determining their "true" manufacturing costs. This has aided these companies in determining which product lines to either eliminate or expand. Our depots could likewise use this tool to evaluate their business decisions, and become more competitive and cost efficient.

All Things are in Flux

Where are we and where do we need to be in terms of our depot manufacturing philosophy? It seems to be the same question that faces all modern manufacturing businesses. The Greek philosopher Heraclitus, in 500 B.C., commented that "all things are in flux" and, with time, conditions change. This parable is once again being recognized by major American companies such as AT&T, GM, and IBM as they recognize the need to adapt their businesses and manufacturing strategies to new paradigms resulting from changes in development of technology and customer satisfaction. Like those major industries, we in the military need to continue to rethink our depot business practices in light of the changes that have occurred over the last several years, and the current problems with excess capacity that are more than likely to increase in the coming years.

Washington is an operations research analyst with the Office of the Deputy Chief of Staff for Resource Management, Fort Monmouth, N.J.



Abandonment

Peter Drucker, the long time guru of innovation in business management, suggests using two procedures to test whether current business practices still serve us, or whether we need to change them. The first he terms "abandonment,"

where an organization should challenge every product, service, policy, and distribution channel with the question, "If we were not performing it now, would we be following that practice?" As Drucker points out, without purposeful abandonment, an organization will be

overtaken by events. It will squander its best resources on things it should never have been doing, or should no longer do.

Study Non-customers

The second procedure that Drucker suggests is to study one's non-customers and their needs and requirements, for

meeting customer needs (e.g., other Service depots, or civilian repair/manufacturing facilities). These two avenues will more than likely drive costs and provide insight as to how the repair/manufacturing processes are changing to adapt to technology and customer requirements.

Recognizing Paradigm Shifts, Restructuring

Essentially what Drucker is talking about is recognizing when a paradigm shift has occurred in the way one's business is conducted, and then restructuring one's practices to fit the new situation. On a related theme, an article on Booz-Allen & Hamilton's experiences with restructuring business practices found that a 10 to 25 percent savings could be achieved in private industry for activities that dealt with maintenance repair and overhaul (activities similar to depots), when the suppliers for those activities were consolidated and their business contracts renegotiated.

Cutting business functions is not the easiest thing to do, however, for there are logical arguments that can be made that those marginal activities, even ones that are losing money, are helping to reduce overhead expenses, or that there would be exit costs associated with not performing those functions any longer. While some validity to those arguments exists, it is only temporary, for the increased business in the profitable areas should more than make up for the ones that have been dropped. This counter argument is also suggested by Koch (1998)¹ who feels that the more successful areas can be grown at perhaps as much as 20 percent per year. Thus, after a year or two the organization would be working on a more profitable footing by dropping unprofitable areas.

However, in order to evaluate the above questions about whether a product line is profitable or not, one has to know what it is really costing to perform those missions. The same issue was addressed again by the General Accounting Office (GAO) report, which stated that accurate cost information is critical to making informed decisions regarding DoD

programs.² GAO went on to state "that DoD needs to develop overhead rates that better reflect actual overhead costs... Specifically, billions of dollars of existing DoD plant, property, and equipment assets have been expensed and, as a result, the cost associated with their acquisition and use may not be adequately considered."

GAO, in another recent report,³ has pointed out that the depots continue to have a poor handle on their inventories (quantities and where supplies are stored). I believe the best solution to these concerns over depots would be to use something like an Activity Based Costing (ABC) system to determine product costs and track materials within the depot system. This view is further supported by a recent directive by Dr. Jacques S. Gansler, Under Secretary of Defense (Acquisition, Technology and Logistics), who directed the Secretaries of the Military Departments and Directors of the Defense Agencies "to pursue aggressively ABC/M implementation in maintenance depots and everywhere else it could be expected to provide improved cost management."⁴

ABC Costing

ABC accounting refers to a process that allocates the cost of overhead and materials directly to the products that use them, rather than the traditional approach of allocating overhead as a rough percentage measure of some proportion such as volume or time. Thus, costs are traced for resources (people, machines, and facilities) to activities and processes, and then to specific products, services, and customers.

A simple example of this might be where one manufactures two different radios in the same quantity, but one of them requires much more engineering support to meet customers' requirements. For this reason, under the old standard cost accounting system, the indirect costs would be allocated equally between the two radios, and would understate the cost of the customized radio while overstating the cost of the other. These inaccuracies in cost allocation could be quite extreme, overstating product costs

they normally constitute a larger population than one's customers. This could take the form of two avenues: looking at how one could expand one's business by satisfying an expanded customer base (e.g., non-governmental customers), or studying how one's competitors are

by as much as 200 percent, or understating costs by as much as 1,000 percent, depending on the characteristics of the products and the nature of the production process.

As a consequence, according to a survey of the Cost Management Group of the Institute of Management Accountants, ABC accounting systems are increasingly being used (especially in manufacturing companies where there is a higher potential for cost distortions) as a decision-making tool. This survey found that in 1996, 49 percent of the firms used ABC accounting, with the other 51 percent responding that they were considering its use. In a survey taken the following year of 600 U.S. manufacturers, 65 percent of the respondents reported having already implemented ABC, or at least having specific plans for doing so.

Likewise, once an ABC system is implemented to determine the cost and profitability of the different products at a depot, it would make sense to expand on the areas where profitability was greatest, and reduce or eliminate areas where it was negative or neutral.

80/20 Principle

Professor Bala Balachandran, director of the Accounting Research Center at Northwestern University's Kellogg Graduate School of Management, has also expressed this view, saying that ABC allows you to see which customers are serving you best; for most companies, 20 percent of their customers account for 200 percent of their profits, while the remaining 80 percent actually lose money for the company.

Richard Koch, in his book "The 80/20 Principle: The Secret of Achieving More with Less," discusses the 80/20 principle. The principle has been recognized for some time, and has been discussed under several terms over the years, such as the Pareto Principle, the Law of Diminishing Returns, the Principle of Least Effort, and, more recently, Chaos Theory. He points out that there is an imbalance in the relationship between effort and benefits (non-linearity), such that 20 percent of the effort achieves, hy-

pothetically, 80 percent of the results, or benefits.

These premises suggest that nearly all businesses have within them chunks of business that have widely varying profitability. A firm that discovers that 80 percent of its profits come from 20 percent of its customers, or products, should use this information to concentrate on keeping that 20 percent happy, or increasing its efforts to sell more of those types of products.

The reverse can also exist in a business, where the bottom 20 percent of products generate most of the losses, and those products should be dropped or outsourced. Thus, hypothetically, one could derive a double benefit from the analysis by boosting the profitable items and dropping the unproductive ones. Consequently, this type of analysis could be done for products, customers, or any other competitive segment. For instance, Koehler Manufacturing Company, performing an ABC analysis on their products, found that after attributing the administrative costs, their favored products were caused a 30 percent loss in profits.

Be Wary of Initial Results

As with any analysis, decisions should not be made solely on the basis of initial results; one also needs to look at the direction of the segments under consideration and, for negative ones, whether they are improving over time or performing poorly for known reasons that can be improved. Likewise, before one expands a profitable area, is it actually feasible to expand that area, and are the results realistic and not a fluke of limited sample sizes? Further, ABC analysis should always use estimated or historical costs, not real-time costs, for real-time costs are subject to fluctuations unrelated to the underlying economics and productivity of the activities being studied. Evidently, normal fluctuations in spending, volume, productivity, and yield will always exist.

ABC Analysis Data

Touching on this area, one of the concerns that has been voiced about ABC analysis is that the data may not exist to

the level of detail needed. To answer this concern, one of the ABC software providers made a statement that ABC estimated values are rather robust, statistically speaking, and can tolerate reasonable cost estimates as proxies for actual transaction detail costs, for they tend to dampen out as those costs are attributed to the final cost objects. Other considerations that should be taken into account as part of the implementation of an ABC system follow:

- Try it first on a sample product(s) prior to an overall implementation, in order to get a feel for how it works.
- The products that are analyzed need to have a definable process.
- The ABC process needs to be accepted by both management and employees as a way to improve the work process, since both these groups provide important feedback to the system.
- The administration of the ABC process should not be performed by just one group; rather, all divisions in an organization need to contribute and coordinate their input to make the process function.

ABC Software

To aid in the use of ABC analysis, several companies have developed specific ABC software. It seems to be an important issue, given how extremely complicated ABC accounting could become, especially with depots that have hundreds of product lines. Thus, it would be necessary to obtain software capable of handling the number of variables that would go into an activity management evaluation for our depots. Currently, site licenses run from about \$5,500 to \$7,000, and training could cost an additional \$3,000 or more. However, in respect to the millions of dollars that are involved in depot operations, the costs to implement an ABC accounting system would be miniscule.

"Real" Improvements vs. "Wishful Thinking"

Recognizing over the past few years that they needed to broaden their customer base beyond government customers, depots have expanded their facilities, both in terms of new buildings and new

equipment, in the hope of luring private industry customers to their doors. Basically, the premise of this philosophy makes sense, because without expanding their customer base, depots face increasing costs. But unless this expansion is justified by increased profitability, the new facilities will have the undesired effect of making the depots less competitive, since these additional expenses add to the overhead of depot operations.

As such, it is important that decisions to expand depot facilities be based upon "real" improvements in business profitability and not "wishful thinking." This is where ABC management decisions

would come into play – to gauge what activities are candidates for increased workload. Likewise, these analyses can aid in determining which buildings and product lines are candidates to either be closed or outsourced.

Editor's Note: The author welcomes questions and comments on this article. Contact him at **William.Washington2@mail1.monmouth.army.mil**

ENDNOTES

1. Koch, Richard, *The 80/20 Principle: The Secret of Achieving More with Less*, Doubleday & Company, February 1998.

2. GAO Report, DoD Financial Management: More Reliable Information Key to Assuring Accountability and Managing Defense Operations More Efficiently, T-AIMD/NSIAD, 99-145, April 1999.

3. GAO Report, Financial Management: Better Controls Essential to Improve the Reliability of DoD's Depot Inventory Records, AIMD-99-132, June 1999.

4. Gansler, Dr. Jacques S., Memorandum, "Defense-wide Implementation of Activity Based Management," (OUSD [A&T], July 3, 1999).

Selected Acquisition Reports As of June 30, 2000

The Department of Defense has released details on major defense acquisition program cost and schedule changes since the December 1999 reporting period. This information is based on the Selected Acquisition Reports (SAR) submitted to the Congress for the June 30, 2000, reporting period.

SARs summarize the latest estimates of cost, schedule, and technical status. These reports are prepared annually in conjunction with the President's budget. Subsequent quarterly exception reports are required only for those programs experiencing unit cost increases of at least 15 percent or schedule delays of at least six months. Quarterly SARs are also submitted for initial reports, final reports, and for programs that are rebaselined at major milestone decisions.

The total program cost estimates provided in the SARs include research and development, procurement, military construction, and acquisition-related operation and

maintenance. Total program costs reflect actual costs to date as well as anticipated costs for future efforts. All estimates include allowances for anticipated inflation.

The current estimate of program acquisition costs for programs covered by SARs for the prior reporting period (December 1999) was \$742,344.9 million. After subtracting the costs for final reports and adding the costs [of] new programs from December 1999, the adjusted current estimate of program acquisition costs was \$731,503.8 million. There was a net cost change of +\$850.9 million during the current reporting period (June 2000).

Editor's Note: This information was released by the Office of the Assistant Secretary of Defense for Public Affairs. To download the *Selected Acquisition Reports* summary from June 2000 and the *SAR Program Acquisition* cost summary table detailing dollar amounts, visit www.defenselink.mil/news/Aug2000/b08182000_bt512-00.html on the Internet.

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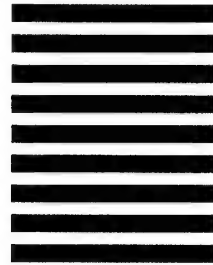
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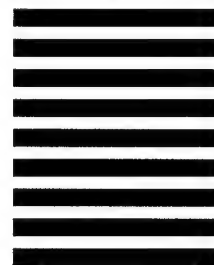
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Quick Tip for all Government-wide Purchase Card Agency and Organization Program Coordinators

Innovative Approach

MAJ. MICHAEL K. WEGLER

The Government-wide commercial purchase card is an excellent procurement tool. It not only eliminates the issuance of purchase orders and receipt of invoices. It also reduces administrative costs. And it improves cash management by eliminating the need for imprest funds, third party drafts, and cash on hand. Unfortunately, Department of Defense (DoD) has a history of being delinquent in purchase card payments to the U.S. Bank. At one point during last fiscal year, DoD was delinquent by over \$10 million and paid significant interest payments on those past due balances to U.S. Bank.

New approach

Over the past few years, DoD modified the purchase card policy focusing on making timely invoice payments and reducing interest payments. Current DoD policy requires the U.S. Bank to suspend any billing account that goes 60 days past due (90 days past the billing date). If any of those accounts become 180 days past due, the entire activity is suspended. The U.S. Bank will automatically lift the suspension once the appropriate payment is received.

Bruce E. Sullivan, Purchase Card Program Manager, has reiterated that a Department or Agency may not have more than 0.75 percent of their total receivables at the bank over 60 days past due, and there is a zero tolerance for any per-

centage of receivables over 180 days past due.

While the U.S. Bank no longer estimates interest penalties due under the Prompt Payment Act, the disbursing office that makes Department and Agency payments calculates the interest due on any late payments, based on the amount of dollars and numbers of days past due. The disbursing activity adds the self-assessed interest to the amount the certifying official approves — utilizing the certifying officials operating funds, and identifying the interest separately in the payment. When the interest is identified in the payment, the U.S. Bank accepts the interest payment in the total.

Sullivan has also stated that it is essential for Agency and Organization Program Coordinators to continually improve the established monitoring system and system metrics developed for their program. Consequently, the Los Angeles District has developed a self-monitoring query process, utilizing the Customer Automation and Reporting Environment (CARE) Program to identify potential delinquent accounts.

CARE Program

The report provides daily balances for all of our Authorizing Official accounts. The Organization Program Coordinator emails the report to the Authorizing Official weekly as feedback for how well the District is paying its bills. Since in-

stituting this process in March 2000, our District has not had one Authorizing Official account go 60 days past due. In addition, our District also quickly went from 12 of 49 Authorizing Official (AO) accounts with past due balances (totaling in excess of \$80,000) to three AO accounts with past due balances totaling (less than \$15,000 in May 2000).

This is not a "silver bullet" to fix program problems. It is another tool to raise visibility to the Authorizing Officials and management of payment deficiencies. Remember that early detection and corrective action is the best way to resolve delinquencies, reduce past due balances, reduce interest payments and avoid loss of card privileges.

If you would like to develop your own report for tracking your accounts at the 1, 2, 3, and 4 levels (which are controlled and authorized by the CARE Program) please visit our District web site at www.spl.usace.army.mil/ct/ct.html. For additional information containing important information on the most recent status of the U.S. Bank's CARE Program go to <http://purchasecard.sarda.army.mil/care3.htm>.

Editor's Note: The author welcomes questions or comments on this article. Contact him at mwegler2spl.usace.army.mil.

Supporting the Army in Transition

Outsourcing as a Solution

SUSAN J. HARVEY

This article focuses on challenges that Army commanders and program managers are facing during transformation and reviews the recent trend toward outsourcing as the solution. It also examines why and how the Army is leaning toward outsourcing and features the Army's newest tool specifically designed to support current thinking and emergent requirements, the HRXXI Century Contract.

The Need for Change

In the fall of 1999, Army Chief of Staff Gen. Eric K. Shinseki announced his vision to transform the Army into a "...responsive force that is dominant across the full spectrum of operations."¹ The first priority in the transformation was to staff the Army's fighting units to 100 percent by the end of fiscal 2000.

By the summer of 2000, transformation was well underway with thousands of soldiers under orders to move from administrative and installation support assignments to combat divisions and armored cavalry regiments; and additional new recruits also under orders to move directly from initial training to fill vacant operational positions. By October 2000, the Army's 10 active component divisions and the armored cavalry regiments will be fully manned.

For the most part, the soldiers moving from administrative and support jobs have not been replaced, generating a need at the affected installations to reengineer their administrative and support operations so that essential services are continued without interruption. The transformation will continue through

Average Man-Year Cost For Administrative Specialist (MOS 71L)



2000

fiscal 2003 as the Army moves to adjust grade and skill imbalances in the deployable forces; fully staff all operational units; and, finally, restore full staffing to a restructured administrative and support force for Army installations.

Coping with Transformation

How are commanders and managers in support roles coping with the loss of soldiers performing essential non-combat duties? Someone has to maintain service records, process incoming and outgoing

soldiers, provide local protection and security, perform related personnel and logistical support functions, and maintain other base operations support functions. For example, in 2000 alone, planning studies suggest that over 1,400 soldiers performing personnel and community service support are earmarked for transfer without replacement.

Early indications are that local installations have not yet fully identified, nor experienced, the full impact of the new

Harvey is a member of the staff of the Office of the Assistant Secretary of the Army (OASA), Manpower and Resource Affairs (M&RA) and is the Contracting Officer's Representative for the Human Resources XXI (HRXXI) Century Contract. Harvey holds an M.A. degree from Boston University and is widely published in the human resources field.



2003

siderations to explore, one option that should not be overlooked is to selectively outsource support functions.

Outsourcing as an Option

Over the past 10 years, the Army has amassed vast experience in outsourcing support functions to the private sector. Prior to this time, the trend was to perform work in-house. For the most part, outsourcing has been popular with commanders. Tapping the free enterprise system has brought Wendy's and McDonald's to military posts everywhere, bringing a little bit of home even to overseas locations. Also, using commercial banks has provided timely and convenient customer service with equal graciousness, regardless of rank.

In addition, the Army using outsourcing contracts provides transition services

The outsourcing option is fast becoming the method of choice to solve personnel shortfalls.

with career counselors who understand the private sector marketplace because they are part of it. The impact of the recent trend to outsource is creating shifts in the labor mix among military, federal civilian employees, and private sector employees. At the same time, the trend, together with Shinseki's initiative, makes it increasingly important for commanders and managers to become knowledgeable of contracting opportunities that are available to outsource local support functions.

The Outsourcing Decision

The announcement of an Office of Management and Budget Circular A-76 study is usually met with strong reservations and concerns by the civil servants in the affected functional area. Understandably, employees are concerned that this process will eliminate their jobs.

The basic purpose of an A-76 study is to determine the cost efficiency of retaining or contracting out services currently being provided by government organizations. To perform the study, the government compares the cost of performing the function in-house with the cost of contracting out.

First, the government must examine the current in-house function and re-engineer it, if possible, to be more efficient. The resulting "Most Efficient Organization" to be used in the competition against the private sector is typically 30

policy. Some installations may have limited impacts; others may feel significant impact from the reduced staffing, as large numbers of soldiers are lost without replacement.

The reductions are generally being taken horizontally, or across all functions, instead of vertically, or eliminating entire functions. This defuses the impact of the loss and decentralizes management of the reductions to the lowest operating level. In many circumstances, the operational tendency will be to tighten the belt and encourage the remaining workforce to work harder and smarter to offset the manpower losses. This may not be the best solution. A more efficient response would be to re-engineer local support functions and devise a more effective way to accomplish Army missions. Certainly, each manager is confronting the challenge with a unique set of circumstances that largely influence the solution. While there are numerous con-

Man-Year Costs (in dollars) for Administrative Specialist

	E-1/3	E-4	E-5	E-6	E-7	E-8	E-9
MPA	32,596.52	41,256.50	50,454.79	60,586.22	71,783.67	82,623.25	95,738.13
OMA	3,890.01	5,648.49	8,857.68	11,624.46	13,384.97	14,909.35	14,425.79
Other	561.28	581.17	606.42	665.04	684.31	685.74	685.74
Total	37,047.81	47,486.16	59,918.89	72,875.72	85,852.95	98,218.34	110,849.66

percent smaller than it was before the study was initiated.

Very often, the results of these studies lead to decisions to contract out selected functions. In almost all circumstances, the numbers of people performing a studied function are reduced.

In the case of replacement of soldiers moving from the TDA [Table of Distribution and Allowances] Army to the combat Army, the decision to move the soldiers has already been made and is not based on the outcome of an A-76 competition. Still required, however, is a basis of determining the appropriate labor mix to fill the void left by transitioning soldiers from the TDA to the combat Army, and how to create the most efficient organization and workforce.

Analysis of Staffing Costs

Even though the rates of many contractors appear higher than those of government employee and military pay rates, often the overall performance cost is less. How could that be? The numbers tell the story.

Productive Hours

First, the productive hours available to perform the work need to be considered. According to Army Regulation (AR) 570-4,² soldiers in the TDA, as opposed to combat-related jobs, and Department of Army civilians have a manpower availability work year of 1,740 hours; that compares to a private industry standard of about 1,920 (the actual numbers vary by company). The disparity between the two standards is due to the additional vacation time, training, special duty, and related requirements that Federal Government employees accrue compared to employees in the business world.

Man-Year Cost

Second, the cost, specifically of the military, needs to be considered. What is not so widely recognized is the much higher man-year cost of a military member compared to an equally experienced and skilled federal civilian employee.

Each year the Army quantifies military man-year costs by pay grade and skill

Originally designed primarily to prevent corruption, contract procedures have evolved into a daunting obstacle course that wears out all but the most persistent manager.

designator so that accurate costs to the taxpayer can be maintained. This man-year cost is roughly equivalent to the fully burdened (overhead and fringe benefit) cost found in the private sector and used in cost comparisons for A-76 studies.

For example, the average man-year cash pay for an Infantryman, Military Occupational Specialty (MOS) 11B in pay grade E-7 is \$42,260.56. However the average man-year cost of this individual to the taxpayer is \$91,621.82.³ The differential of about 125 percent is composed of such non-cash costs as recruiting, accrual cost of the retirement pay system, average cost of reenlistment bonuses, and other similar costs.

Interestingly, the man-year cost for the Infantryman exceeds that of an Administrative Specialist (MOS 71L) in every pay grade, peaking at almost a 7 percent differential in pay grade E-7. The table on p. 39 itemizes the man-year costs for an Administrative Specialist across enlisted pay grades and by budget activity such as Military Pay/Army (MP/A); Operations and Maintenance, Army (OMA); and miscellaneous accounts such as GI Bill and training, other than OMA.

Actually, the military man-year cost differences, when compared to the private sector, are even greater than shown in the table. Costs not included in the table are the range of support costs found in

the common industry overhead rate. The non-included costs are for functions such as administrative support (personnel, pay, and benefits), utilities, office space, and equipment.

Clearly, from these cost compilations, a soldier is indeed an expensive resource for the taxpayer. This is why the Army is reducing the TDA Army while fully staffing the combat Army. Unfortunately, the total military costs are mostly hidden because they are spread across different budget line items and are not collectively addressed during budget deliberations.

A complete rundown on Army military and civilian manpower costs, by skill area and pay grade, from the Army Military-Civilian Cost System (AMCOS)⁴ can be downloaded from the U.S. Army's Cost and Economic Center main menu on the World Wide Web at: <http://www.ceac.army.mil/>.

When to Consider Outsourcing

The foregoing costing comparison leads to the question of when installation commanders and managers should consider the outsourcing option for replacing military TDA manpower spaces. To qualify as a potential client for an outsourcing effort, a work center manager must meet three decisive criteria: there must be a problem; the manager must want to solve the problem; and the manager must have the resources or the ability to get the cooperation and support of his or her senior leadership in solving the problem.

Many managers probably already have more problems than they can readily solve. An unplanned shortage of soldiers to perform essential tasks will just be another issue to deal with. Once a decision is made to solve the problem, the manager must then mobilize resources to effect a reasonable solution.

Basically, the manager has several available options. Assuming a permanent fix is preferred, the first choice might be to replace the soldier with a federal civilian employee. If this option is not available, consideration may be given to performing the mission with temporary

help. This option is generally a stopgap measure at best because of training requirements, high turnover, lack of organizational commitment, or for other good reasons. That leaves the outsourcing option.

Contract Help Available for Commanders, Managers

Once the decision is made to outsource, what is the next step? Two options are available. The first option is to attempt to have a contract awarded to support the need, and the second option is to find an existing contract.

Contract Award to Meet the Need

Let's consider the first option — pursuing a contract award to meet the need. While it is no great secret how to place a service function under contract, the process can be challenging and time consuming. The government has intentionally created a myriad of structures, review authorities, and regulations to assure competitive fairness and to safeguard the public interest in outsourcing actions.

Originally designed primarily to prevent corruption, contract procedures have evolved into a daunting obstacle course that wears out all but the most persistent manager.

Most Federal Government procurement activities are regulated by the Federal Acquisition Regulation (FAR). The FAR establishes rules regarding the use of contracts in procuring goods and services for the government.

Contracts range from the fast but difficult-to-justify, noncompetitive procurement to the slow and labor-intensive open competition procurement. Generally, sole-source procurements are regarded as the exception to open competition and appropriate only in limited circumstances. The circumstances must be justified and include urgency of need, availability of only a single source, or a proprietary product produced by the provider that is not available elsewhere. Justifying sole source for the type services discussed in this article is difficult.

Full and Open Competitive Process

Unfortunately, the alternative of a full and open competitive process is time consuming if there is a need for a substantial level of services. If the need can be satisfied with a procurement of \$25,000 or less, then a simplified telephone solicitation process could result in a "purchase order." But if the need is over \$25,000, full competition is necessary. Even if under \$25,000 and the need is repetitive, a series of purchase orders could be time consuming.

Existing Contract Vehicles

If this process sounds too difficult, then let's review the use of existing contract vehicles. These typically are written on an open basis and allow anyone with a need and money to obtain services they need quickly. Typically, existing contracts have already been competed; so the requirement for competition is satisfied.

The first decision criteria in identifying the existing contract that is most appropriate is to determine if a contract from a local contract office will support the requirement, or if the assistance of a broader-based contract generated by another contract office is needed. Local contract offices can usually handle small requirements under \$25,000. However, to obtain the best value for the government, projects that have a higher price tag should typically be procured through a large, omnibus contract. Large, omnibus contracts provide access to a wide range of services.

Types of Contracts

The next step for the manager is to determine what contract should be selected for the work to be accomplished. In the case of replacing soldiers performing routine, non-combat support or administrative tasks, there are three types of contracts commonly available: fixed price, cost plus fixed fee, and time and materials. Each is constructed to focus on a specific type of work environment.

FIXED PRICE CONTRACT

The fixed price contract is usually the most preferable for the government. The entire risk of performance is assumed by the contractor to perform the job

within the time and cost that were originally estimated. This type of contract is used when the desired product is well defined and there is no ambiguity between the government and the contractor on required deliverables.

COST PLUS FIXED FEE CONTRACT

A cost plus fixed fee contract, on the other hand, shifts the risk to the government and is appropriate when the required product is not clearly defined or may change during the course of the contract period. This type contract covers all reasonable costs associated with performing required services, and provides the contractor a pre-negotiated, fixed fee, usually based on a percentage of contract costs.

TIME AND MATERIALS CONTRACT

The time and materials type of contract is selected when the government wants to buy labor services on an hourly basis and materials on a reimbursable basis. The contract is suited for work when there is a well-defined notion of the labor qualifications to do the job, but the level of services and material is not well defined. The downside of this contract is that the qualifications to do the job assume more importance than the productivity of the individual or firm selected for the task. It is a form of a fixed priced contract with the hourly price specified; like hiring a plumber at a fixed hourly rate to do a plumbing job, the final cost is dependent on the productivity of the worker.

The smart manager will take advantage of the flexibility in federal procurements and conduct his or her own shopping expedition to secure the contract vehicle that best fits the unique circumstances. Currently, the most widely used available option for the enterprising government manager with a large project is to outsource through a government-wide, multiple-award contract.

The Government-Wide, Multiple-Award Contract Option

Using an available government-wide, multiple-award contract that was developed for use by any federal agency is an attractive option for the busy manager.

Managers often do not have the luxury of time or staff for the months of intensive work required to initiate a new competitive contract. The General Services Administration (GSA) has a range of contract options from which to select qualified professional services providers. The full range of schedules the GSA offers for available services is found on the GSA Web site at <http://www.gsa.gov>.

The Army's Newest Innovative Approach

In the late 1990s, anticipating substantial changes in human resource services and support, the Army constructed the HRXXI contract to meet its emerging requirements. This Army-focused government-wide, multiple-award contract is ideal for activities affected by the Army in transformation. Sponsored and managed by the Office of the Assistant Secretary of the Army for Manpower and Resource Affairs, this contract offers a quick and easy way to outsource work previously performed by soldiers.

The full and open competition for the HRXXI base contract, the buying power of a large omnibus contract, and ongoing competition between contractors for individual task orders result in a highly cost-effective option. The HRXXI Statement of Work covers the entire range of personnel and administrative-related efforts and is uniquely designed to support the military services at local and headquarters levels. Managers across the Army are discovering and using this new tool to re-engineer their unique programs and to efficiently support their mission.

Like many large acquisition efforts, the contract is administered by a support staff that completes most of the work in moving a Statement of Work to a contract. Additional information on this contract, procedures to be followed to obtain services under the contract, and details on the type of work that can be accepted can be found at <http://www.hrxxi.army.mil>.

A Road Map For Achieving Positive Results

The busy and efficient manager always looks for solutions that provide the best

return to the taxpayer. Often these solutions can be accomplished by a simple realignment of tasks or laying more work on your best employees. At some point, this strategy will not work and should be replaced with a contracting vehicle for selective outsourcing. The transforming Army will stretch the ingenuity of the local installation manager over the next few years as the total realignment takes place.

At this time, all indicators suggest that it will become increasingly difficult to solve emerging crises with the same old ways of doing business. New and innovative ways of accomplishing the mission will be needed to carry on the tasks at hand. The prudent manager will take charge and mobilize the resources that are necessary to get the job done.

The outsourcing option is fast becoming the method of choice to solve personnel shortfalls. The most difficult part of getting a project under contract, however, is having the will to see it through. To date, no shortages of naysayers exist who will throw obstacles in the manager's path. Several areas to consider as one proceeds down the contract path are worthy of mention:

- Understand the territory by having a rudimentary idea of basic contract procedures. Know the advantages and disadvantages of sole-source procurements. Recognize the difficulty and time involved in getting a new competitive procurement drafted, approved, and in-place. Research the availability of multiple-award contracts.
- Be realistic. Get a good sense of the ultimate fairness of using the fair market system inherent in private industry, and use it to the advantage of the taxpayer. Don't shy away from the private sector. The open market has a way of self-regulation that inevitably results in a fair price regardless of what the profit margin is.
- Be diligent. The contract manager is like a captain on a sailing ship. The manager ensures that the project remains on course and the ship is prop-

erly provisioned and crewed to get where it's supposed to go. Wasteful deviations are quickly corrected, and the crew understands who is in charge. The manager keeps the destination firmly in mind and is persistent about getting there on schedule.

- Do the right thing. No rule is in place to govern every situation. Considerable latitude is offered by the FAR to get the job done. A keen sense of right and wrong is necessary to guide decisions that fall into regulatory gray areas. When in doubt, consult wiser and more experienced managers.

Final Thoughts

Army Transformation is underway. It promises to challenge installation managers with thousands of soldiers transferred without relief in 2000 alone, with additional thousands to follow over the next two years. Doubling up, re-engineering, function elimination, and outsourcing are all going to be taken to their limits. If outsourcing is the preferred option, installation commanders and managers should consider taking advantage of available contract vehicles already in place to quickly respond to military manpower shortfalls.

Be aware that most major government-wide, multiple-award contracts carry a small administrative fee to cover the cost of the contract and to support contract administration. Generally, it seems a small price to pay for a cost-effective solution and the convenience of program and functional continuity.

Editor's Note: The author welcomes questions and comments on this article. Contact her at Susan.Harvey@HQDA.Army.Mil.

END NOTES

1. HQDA Message 081200Z (Washington, D.C., November 1999).
2. Army Regulation (AR) 570-4, Manpower Management (HQDA, Sept. 25, 1989).
3. Army Manpower Military-Civilian Cost System 1998 (updated with 2000 pay rates).
4. Ibid.

The RAH-66 Comanche



SPECIAL FEATURE

In this series of six articles, the Program Manager and members of the Comanche RAH-66 Program Management Office detail their 18-month total team effort to complete a successful Milestone II review for delivery of the Comanche RAH-66 – the Army's latest advanced technology helicopter.

Comanche – The Road to Milestone II

Success Dependent on Total Team Effort

MAJ. GEN. JOSEPH L. BERGANTZ, USA

Looking more like a strange 11,000-pound dragonfly than an advanced weapon with a deadly sting, the Comanche RAH 66 twin-engine advanced technology helicopter is designed to get up close to the action and locate where the enemy is. Flying at 200 miles per hour, Comanche literally sees in the dark and is well suited for its primary mission of aerial reconnaissance on the modern battlefield.

With fielding scheduled to begin in December 2006, the Army wants about 1,200 Comanches.

A New Path

On April 4 the Comanche program completed a successful Milestone II review. This event was the culmination of a great deal of hard work by the entire Comanche team – government and contractor. The entire effort took approximately 18 months to complete, beginning with an Overarching Integrated Product Team (OIPT) meeting on June 30, 1998.

At this meeting, the Comanche program was redirected on a new path to accelerate the fire control radar development; to bolster the modeling and simulation portions of the program for both engineering and operational activities; and finally, to deliver a production representative set of prototype and Initial Operational Test and Evaluation aircraft, produced on production representative tooling. All agreed at the OIPT that these programmatic improvements were for the better.

As a result, the Office of the Secretary of Defense approved the new program strategy. Another important component of the new acquisition strategy was accel-

eration of the Milestone II decision point from October 2001 to April 2000. This was key – decision makers recognized that the program had conducted significant risk-reduction work, had demonstrated many of the critical pieces of technology, and that it was time to move on to integrating and testing those subsystems together.

Two follow-up OIPT meetings in December 1998 and July 1999 served as way points to check the program's progress as it proceeded to a Milestone II review in April 2000. At the December OIPT, the Cost and Analysis Improvement Group (CAIG) noted that the program funding profile for the remainder of development was short in the fiscal 2000 and fiscal 2001 time frames. As a result, the Congress added \$40 million in fiscal 2000, and the Army added \$52 million in fiscal 2001. Both of these additions reduced technical and schedule risk in the near term.

Trade-offs

One of the biggest constraints in adapting to the new strategy was living within the funding resources available at the time. To do that, we had to make many program trade-offs over the following year and a half to reduce cost, while maintaining schedule and performance. We could not have done this without the TSM (Training and Doctrine Command System Manager) and his team, who helped review the system requirements and schedule, using Cost As an Independent Variable (CAIV) techniques.

Also critical to success in adapting to the new program strategy was the close working relationship between government and the Boeing-Sikorsky prime contractor team. We used Alpha contracting extensively throughout, pre-

cluding the need for a separate and distinct proposal evaluation board activity. This saved the government a significant amount of money and, more importantly, time. Both of these techniques will be discussed in more detail later in this article.



Bottom-Up Cost Estimate

Throughout 1999, the Comanche government team worked closely with the contractor team to develop a bottom-up program office cost estimate for the total life cycle costs of Comanche. The program estimate is quite detailed and covers all cost areas such as bill of materials, manufacturing manhours, and direct and indirect engineering manhours.

In December 1999, we reached cost closure and conducted a bottom-up risk assessment of the entire program, with results presented at an internal Integrated Baseline Review (IBR). This review is typically done within six months

after the contract award. However, we opted to conduct the IBR prior to the Milestone so that we could better understand risk going into the review cycle.

Risk Management

The risk assessment evaluated a total of 185 areas, with 83 assessed as moderate, 102 as low, and no areas assessed as high risk. We used an automated assessment tool across the board, so everyone had the same set of definitions for levels of risk. This review was quite beneficial as it focused the program office on specific areas where there was need for management emphasis. These areas will be targeted for specific award fee in-

centives to assure continued contractor emphasis and desired performance. In addition, we prepared mitigation plans for each moderate area of risk, which were in place by the contract award date for Engineering and Manufacturing Development (EMD), the final development phase.

An example area of focused risk management is software development. This is an area that normally plagues all electronics-intensive weapon systems. To address risk in software development, the Comanche program has taken a serious internal look at its resources and processes. We not only reviewed these



To address risk in software development, the Comanche program has taken a serious internal look at its resources and processes.

The cornerstone of the new Army vision – the RAH-66 Comanche. The Comanche armed reconnaissance/attack helicopter will swiftly resolve crises and conflicts by fully exploiting the benefits of the digital battlefield. It is a premier early entry system with a small footprint that is easily transportable. It can readily self-deploy. It flies deep, armed reconnaissance missions to give the commander a detailed real-time analysis of the crisis area and the adversary within. It has the extended range and lethality for performing light attack, armed reconnaissance, and deep strike missions.

MAJ. GEN. JOSEPH L. BERGANTZ, USA

Program Executive Officer, Aviation

Army Maj. Gen. Joseph L. Bergantz was promoted to the rank of major general and re-assigned as the Program Executive Officer (PEO) Aviation, Redstone Arsenal, Ala., effective July 31, 2000. Reporting directly to the Army Acquisition Executive, he is the Army manager for the Apache, Comanche, Improved Cargo Helicopter, Aviation Electronic Combat, Aircrew Integrated Systems, and Advanced Threat Infrared Countermeasures/Common Missile (ATIRCM) Warning Systems programs. Prior to his promotion and reassignment, Bergantz was the Program Manager, RAH 66 Comanche at Redstone.

A native of Huntingdon, Pa., Bergantz graduated from the U.S. Military Academy at West Point and was commissioned as a Field Artillery (FA) officer in 1971.

His formal military training includes Airborne and Ranger schools, FA officer basic and advanced courses, rotary and fixed-wing training, Armed Forces Staff College, the Program Management Course at DSMC, and Army War College. He holds a master's degree in Aerospace Engineer-



ing from Georgia Tech and a master's degree in Engineering Management from the University of Missouri (Rolla).

Bergantz has served in a wide variety of acquisition positions, ranging from Research and Development Coordinator, Light Helicopter Office and Advanced Product Manager (APM) for Longbow Apache to Department of the Army and Office of the Secretary of Defense-level staff assignments.

Other key assignments include Platoon Leader, 71st Aviation Company (AH); Battery Commander, A Battery, 3/35th FA; associate professor at West Point in the Mechanical Engineering Department; Product Manager for Communications Intelligence Aircraft; and Commander, Aviation Technical Test Center.

Alpha Contracting

Alpha contracting was another area where we made significant strides leading up to Milestone II. Briefly, Alpha contracting is a practice in which the government team meets with the corresponding contractor team prior to negotiation to consider where cost differences and technical misunderstandings exist and resolve them to the maximum extent possible during the period of interaction. Once the program office had

committed to the new program direction in 1998, we used Alpha contracting consistently. This was new territory for the program, and it was thus a learning experience for both the contractor team and the program office.

Both parties agreed early on that it did not make sense to require a formal proposal evaluation process, conducted in the traditional way of constituting an off-site team to handle this mission as a special mission activity. Instead, we used our IPTs, already in existence, and used Alpha contracting techniques. After having gone through this experience, we heartily endorse this way of negotiating and evaluating proposals. It certainly saves a significant amount of time and effort.

While it is difficult to quantify a total cost savings to the program, clearly Alpha contracting certainly reduced risk to the program, as well as saving time and effort. Subject matter experts were not taken away from their everyday jobs and segregated into a separate area. They were instead able to continue doing their normal jobs as the process unfolded. While all members of the team remained busy, their efforts were more productive due to Alpha contracting, contributing greatly to the program's maintaining cost and schedule performance.

Some specific examples of how Comanche combined Alpha contracting techniques with the IPT process and CAIV principles are noteworthy.

Alpha Contracting and IPTs

For instance, at the grass roots level, each IPT had certain technical constraints within which to live, as well as development cost, production Design to Cost (DTC), and Design to Operations and Support Costs (DTOSC) goals. In the case of the Comanche radar, for example, we estimated all the costs associated with the development, integration, and testing of the radar at the lowest level of the Work Breakdown Structure (WBS). We did this not only for the subcontractors (Northrop-Grumman/Lockheed Martin) who provide it, but also at the Boeing-Sikorsky prime contractor level,

at the prime team developers, but also at the subcontractors, who provide a significant amount of software development within the overall program.

In addition to internal reviews, the program office has also scheduled a Tri-Service external review to benefit from an independent assessment of potential software problem areas and identify the appropriate software metrics to track throughout the Comanche EMD phase.

where it is integrated with all other sub-systems on the aircraft.

We assigned each IPT weight goals at the lowest WBS level, which they had to meet to keep the entire aircraft's weight on track and within budget. In addition, we continually adjusted the DTC and DTOSC cost goals as this process evolved, making appropriate trades as necessary along the way to stay within funding constraints. As unexpected external funding changes occurred, the program office made internal program adjustments to cost, schedule, or performance to drive the program to a balanced situation.

The process produced a working plan to see this program through to the end of development in December 2006. We laid out all the necessary pieces in detail and costed, scheduled, and assessed them in terms of risk. At the end of this process, when we finally reached closure with our prime contractor team, we had achieved an executable program that fit within the schedule and funding available with low to medium risks. It remains a challenging program, requiring focused management as one would expect.

Alpha Contracting and CAIV

CAIV also played an important role in program definition. The program office, working closely with the contractor team and the TSM's office, participated in a requirements review of the 1993 Operational Requirements Document (ORD). This review pointed out necessary modifications to the ORD to update it and make it relevant to the type of warfare we are now seeing and expect to see over the next 10-15 years.

The result of this review led to some requirements being deleted, some being added, and some being moved to the growth section of the ORD. The program office then structured the Comanche program to satisfy the new ORD requirements and developed a block upgrade approach for future growth capabilities. The program will continue to use CAIV principles during EMD to help keep the program on track in terms of cost and schedule.



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Exit Criteria

A major element in the Milestone II process was the completion of a set of milestone Exit Criteria that were mutually developed among the program manager and outside organizations, primarily the testing community. These criteria were set at levels less than the full-up specification, but high enough to demonstrate significant progress in meeting the full-up specification. The Comanche program had seven exit criteria:

- Second Generation Forward-Looking Infrared Radar (FLIR) Performance
- Ballistic Survivability of Five Components
- Vertical Rate of Climb (VROC) Performance
- Readiness and Supportability
- Radar Signature
- Infrared (IR) Signature
- Comanche Radar Moving Target Acquisition Range.

Second Generation FLIR Performance

We demonstrated performance of the second generation FLIR using Minimum Resolvable Temperature measurements and models to confirm the performance of the targeting FLIR. In addition, we flew the FLIR on a Blackhawk helicopter as a surrogate platform. This demonstration took user pilots from Fort Rucker, Ala., and allowed them to detect typical targets at Fort A.P. Hill, Va.

The pilotage FLIR also demonstrated second generation performance on an Apache helicopter as a surrogate platform. Both FLIRs lived up to expectations, and all user pilots confirmed that the second generation FLIR is definitely a vast improvement over our current first generation technology.

Ballistic Survivability of Five Components

In the area of ballistic vulnerability, component firings were done on the tail rotor drive shaft, the main rotor quill shaft, and the internal fuel cell. Two other previously fired component tests were deemed acceptable. In every case, the components performed at the prescribed levels and, in some cases, exceeded expectations.

For example, the fuel cell firing provided some very interesting results. The Comanche is a nearly all-composite airframe. As the fuel cell was shot on the static test article, the structural keel beam behind it bowed due to the force of impact, then quickly sprang back to its original shape. The resiliency of composites, and the way they react to shots, in many cases contribute to increased survivability. For example, the typical spalling seen with metal airframes is not nearly as prevalent with composites, thereby reducing secondary effects.

Vertical Rate of Climb (VROC) Performance

The VROC provides a composite measure of excess power. This excess power translates into maneuverability and agility for various combat maneuvers (e.g., rapid lateral displacement or unmasking and re-masking). We measured VROC, both

by hovering vertical free flight and tethered hovering flight. The Comanche is required, in primary mission configuration with the radar installed, to achieve at least a 500-feet-per-minute vertical rate of climb performance on a 95-degree Fahrenheit day at 4,000 feet pressure altitude. Such performance will ensure that the Comanche will be able to operate satisfactorily in 95 percent of the potential combat environments, under high/hot conditions. The prototype aircraft demonstrated 510-feet-per-minute VROC performance, adjusted to the conditions specified here. Our measured VROC significantly exceeded the milestone exit criteria.

Readiness and Supportability

The Comanche has embedded diagnostics to help the crew and maintainers correctly detect and isolate system faults. Two subsystems, the secondary power unit and the flight control system, were injected with faults to demonstrate Comanche's fault detection and isolation capabilities, under the readiness and supportability rubric. The line replaceable modules that go into the mission computers each have approximately 25 percent of the board layout dedicated to on-board diagnostics. This, in conjunction with the Portable Maintenance Aid (PMA), allows the maintainer to correctly detect and isolate faults.

The PMA is a ruggedized laptop computer that not only allows the maintainer to download and identify faults, but also walks him or her through the proper troubleshooting techniques and replace or repair procedures. Twenty faults were inserted at random into the secondary power unit, and 25 faults were inserted into the flight control system. The fault detection and isolation system correctly found every fault, and the PMA correctly troubleshooted and guided the maintainer through the appropriate corrective actions to address those faults.

Radar Signature

The most challenging portion of the Comanche radar signature is the radar cross section (RCS) on the nose of the aircraft. This is due to the complex shapes, moving parts, and optical windows involved.

A full-scale model of the nose was built and tested on the Lockheed Martin test range in Orlando. These results were then added to full-scale pole model results from an earlier test to build up a composite signature of the aircraft. The results confirmed that Comanche had exceeded its exit criteria and came very close to meeting its ultimate required signature level.

Infrared (IR) Signature

The other survivability exit criterion dealt with the IR signature. The Comanche has a unique tail cone mixing chamber, where hot gases from the engines are cooled. The Comanche was tested side-by-side with a suppressed utility helicopter and proved at all conditions to have a much smaller IR signature. In fact, the Comanche had again surpassed its exit criteria, and again nearly met its requirement for the end of development.

Comanche Radar Moving Target Acquisition Range

The final criterion demonstrated was Comanche radar performance in finding typical moving tank targets at 80 percent of the required range. This demonstration was initially done at the Northrop-Grumman tower facility, near Baltimore-Washington International airport. Initial test results indicated acceptable performance out to 49 percent of the required range. Antenna losses were observed, which had to be overcome. The team made interim fixes, as appropriate. Additional testing was conducted in March at Yuma Proving Ground, Ariz., on a calibrated range with M-60 and T-72 tank targets at the prescribed 80 percent range. The results of the Yuma demonstration indicated that the Moving Target Indicator portion of the radar met the exit criteria. The ability to complete this additional testing and demonstrate a marked improvement in performance is a real success story in terms of government and industry working together as a team.

Finalizing Documentation

Comanche's performance in satisfying the exit criteria outlined in this article certainly helped secure approval to con-

tinue development at the milestone review. During the two months prior to the Defense Acquisition Board, the Comanche Program finalized all its documentation requirements, including some new documents to the program. For example, the Command, Control, Communications, Computers, and Intelligence (C4I) plan was completed for the first time and coordinated with both the Army Director of Information Systems for Command, Control, Communications and Computers (DISC4) and the Office of the Secretary of Defense (OSD) Command, Control, Communications and Intelligence (C3I) offices. That document is particularly important as it addresses many of the ways that Comanche will be able to capitalize on its information dominance capabilities.

Analysis of Alternatives

The final major effort that was progressing in parallel was the Analysis of Alternatives (AoA). The AoA was led by OSD Program Analysis and Evaluation (PA&E), with the majority of the work done by the Army. Specifically, TRADOC Analysis Center (TRAC), Fort Leavenworth, Kan.; Fort Lee, Va.; White Sands Missile Range, N.M.; as well as the Army Materiel and Systems Analysis Agency (AMSAA) did the lion's share of the work, with help from the program office and user involvement from Fort Rucker, Ala.

The AoA working group met at least once monthly, and the council of colonels and the Senior Advisory Group met every six to eight weeks. These groups reviewed progress of the analysis and provided guidance to redirect efforts and resolve problems along the way. The analysis was very robust in that it addressed a host of different major scenarios — four in Southwest Asia, one in Northeast Asia, and two in Europe Command (EUCOM), with both high and low resolution. Three alternatives were studied:

Alternative 1

The current OH-58D and AH-64D fleet.

Alternative 2

A fleet of AH-64Ds and RAH-66s, with varied Comanche radar mixes.

Alternative 3

A similar fleet of AH-64Ds and RAH-66s, but with the RAH-66 degraded in RCS, weight, and maintenance burden. (Alternative 3 was run to gain sensitivities around three major features of the Comanche.)

In addition to these three alternatives, a fourth alternative concerning a Comanche and Tactical Unmanned Aerial Vehicle (TUAV) mix was performed independently under the Manned/Unmanned concept exploration project by the Training and Doctrine Command.

In terms of cost, Comanche Alternatives 2 and 3 cost about \$10 billion more than Alternative 1, the majority of which is the actual production cost of a new aircraft.

Operationally, the Comanche alternatives provide an improvement in force effectiveness and survivability in all cases. The Comanche force displayed more proactive and deliberate engagements at higher optempo. Comanches provided improved target detection times and ranges, which allowed many battles to be brought to a decisive conclusion sooner. Comanche forces achieved earlier detection at greater ranges permitting more use of artillery, such as the Multiple Launch Rocket System (MLRS) and other supporting fires. Comanche, augmented by TUAVs, reduced the overall blue losses and collateral damage.

Finally, Comanche alternatives had enhanced reliability, availability, and maintainability at lower personnel costs, including the degraded Comanche alternative. Thus, the AoA highlights the Comanche's significant contribution to the warfighter in terms of cost and operational effectiveness.

Reaching the Goal Line

Along the way to the milestone, the program team learned some very relevant lessons. These have to do with the acquisition process, the IPT process, the budget process, and other related acquisition activities.

Good Communication

Probably the single most important lesson learned from this experience is that good communication is required both up and down the government chains, as well as back and forth with the contractors, to ultimately reach the goal line. To that end, I believe the IPT process is working. It serves as the right forum for passing information to senior leaders, enhancing program management, and resolving issues as they arise.

IPTs work best when the working-level members report back to the senior leader on topics discussed and strive to achieve consensus of the group in resolving issues. As leaders receive this information, it's incumbent upon them to tell their representatives what their positions are so that their representatives can properly present those stated positions at the IPT meetings.

Three issues arose in our pursuit of Milestone II concerning IPTs:

LIMITATIONS OF CONTRACTOR REPRESENTATIVES

IPT members were sometimes contractors, who often spoke for government offices as if they were government employees.

COMMUNICATING IPT ISSUES TO SENIOR LEADERS

IPT issues were not transmitted back to the senior leader or were transmitted, but garbled. With the staffing drawdown and agencies left shorthanded, we are faced with an ever-increasing number of contractors to do the work. Learning the limitations of contractor representatives in government decision forums is very important. At our IPT meetings, we tried to insist that a government employee (either civilian or military), representing his or her organization, always be present when decisions were being made.

To address the second issue, we tried to take detailed notes from IPT meetings and convert them to meeting minutes, distributing them quickly to IPT members to ensure accuracy and responsiveness. This worked fairly well. In retrospect, it would have been smarter to

also send these minutes to the senior leaders, to keep them informed from the program office perspective, in addition to the information they got from their representatives.

IDENTIFYING THE ISSUES

The other issue we had with IPTs was initially getting representatives to identify their issues. After some intervention from senior-level leaders, the process was kick-started and issues came forward. Once the issues were identified, the IPT forum worked well in resolving them. It helped focus the resolution process, served as the right meeting place for the key people to come together, and helped the program office adjust talent and resources to accommodate resolutions.

Staging Area

Another initiative that we implemented to improve efficiency was to establish a staging area in Crystal City, Va., at a contractor's site for use as a base for IPT meetings, internal program meetings, and also for completing administrative tasks such as copying and preparing briefings. This base went into full-fledged operation about two weeks prior to the Army Systems Acquisition Review Council (ASARC) and shut down two days after the Defense Acquisition Board. This was one of the smartest things we did. It gave us the option of a dedicated meeting room when those in the Pentagon were booked, as well as providing a very convenient place to adjust briefings as the process and issues unfolded.

In Retrospect

Getting through a successful milestone review is a lot of hard work, but is definitely a highly rewarding experience and well worth the effort. Success is highly dependent on a total team effort. Both industry and the government players must proactively pull together to stay on schedule and produce an executable plan. In doing so, the final product can be a win-win for all concerned.

Editor's Note: For more information, go to the Comanche PMO Web site at http://www.comanche.redstone.army.mil/logo_rah.html.

Comanche Acquisition Approach

Mission Equipment Package — Electronic Heart and Soul of Army's Newest Advanced Technology Helicopter

FRANK WALLACE

The electronic heart and soul of the RAH-66 Comanche advanced technology helicopter is its Mission Equipment Package (MEP). Specifically, MEP includes the mission computers, navigation subsystem, communications subsystem, targeting subsystem, aircraft survivability subsystem, night pilotage subsystem, controls and displays subsystem, and display generation subsystem.

With an impressive suite of advanced electro-optical sensors, digital communication, aided target recognition, sen-

sor/weapons integration, and navigation systems, Comanche brings state-of-the-art information dominance to the maneuver commander.

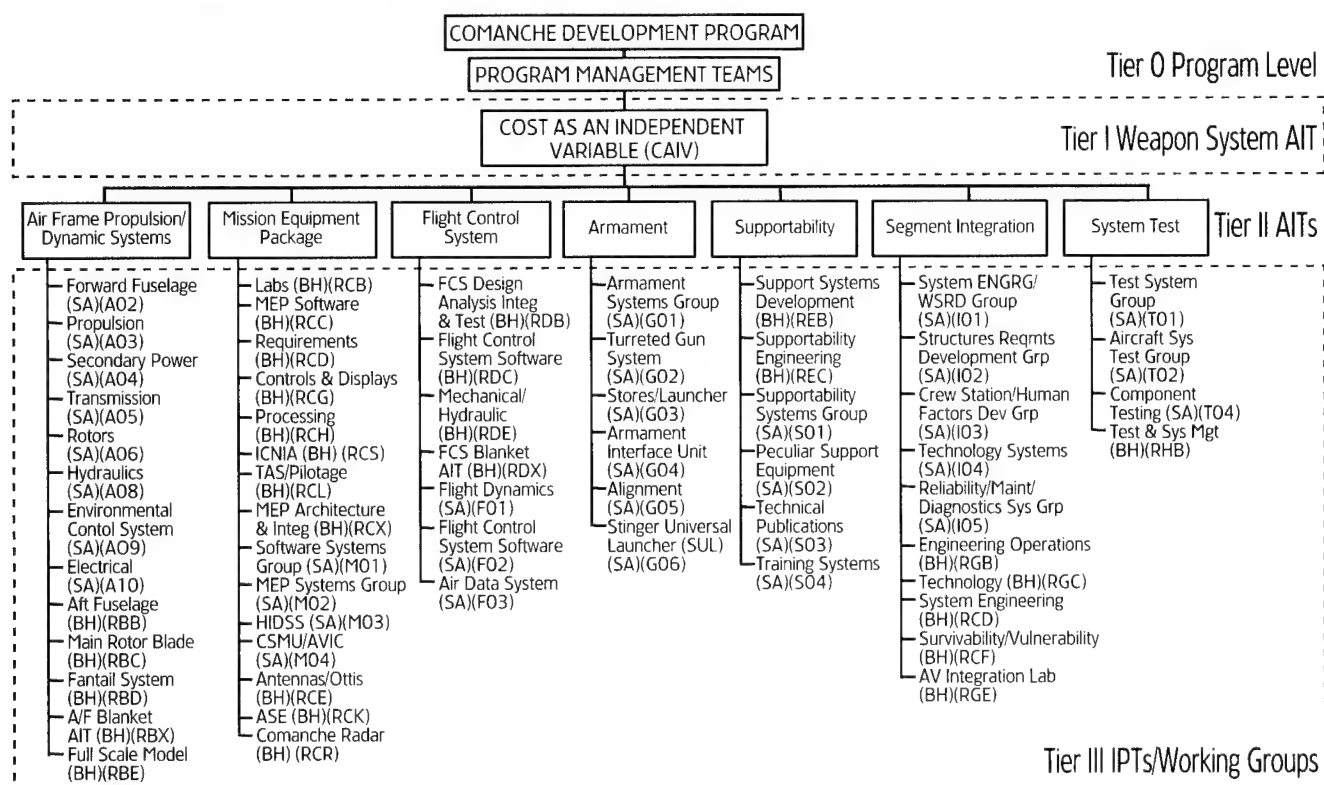
In the area of interoperability, Comanche's MEP provides the information systems and sensor suites that enable integration of common shared battlefield data horizontally (between battlefield functional areas), maximizing the full value of the combined arms force. Moreover, Comanche's MEP uses an open, flexible electronic system architecture allowing the on-board systems to be tai-

lored for various functional performance levels and is designed to facilitate future growth. A combat system, Comanche far surpasses existing platforms in terms of survivability, versatility, maneuverability, lethality, reliability, and cost of ownership.

The Challenge

A July 1998 decision redirected the Comanche program to accelerate the Fire Control Radar development by approximately five years; and accelerate entry into the Engineering and Manufacturing Development (EMD) phase by 18

FIGURE 1. Comanche AIT/IPT Product Management Structure



Wallace is the Project Manager, Comanche Mission Equipment Package, RAH-66 Comanche Program Manager's Office. He is a graduate of PMC 90-1, DSMC.

months. This was to be accomplished within current funding constraints, both within annual funding profiles as well as total dollars.

A substantial portion of the program redirection directly impacted MEP. The Comanche MEP has significant technical complexity and presents challenges in developing multiple, integrated new technologies. Modifying EMD plans to meet funding and schedule constraints through routine acquisition practices would not be effective in the time available, while still assuring an executable program plan. For that reason, Comanche implemented aggressive new processes that involved the entire acquisition team (user, developer, contractors, and contracting authorities).

The variety and complexity of the Comanche MEP subsystems and the associated contractor teams provided unique challenges to "fit" the pieces within the cost and schedule constraints, yet optimize performance. Whereas the classic approach would follow the path of Requirements Development - Request for Proposal - Proposal Preparation - Negotiation - Award - Program Planning - IBR/Execution, Comanche was forced to develop a much more aggressive path. The Comanche process literally substituted the classic Proposal Development/Negotiation process with a Program Baseline Planning process, typically implemented after a formal contract is in place.

Predictably, this implementation met with a measure of skepticism from all areas, not the least of which was the contractor community. Although initially viewed as standard Alpha contracting, the Comanche approach went several steps further.

The process required the Acquisition Team to evolve true baseline plans that integrated technical requirements, cost, and schedule into an Integrated Baseline that went beyond the classic "proposal estimating" to "execution estimating." As such, evaluations of the planning in terms of Scope/Requirements vs. planned schedules and re-



THE COMANCHE PROCESS LITERALLY SUBSTITUTED THE CLASSIC PROPOSAL DEVELOPMENT/ NEGOTIATION PROCESS WITH A PROGRAM BASELINE PLANNING PROCESS, TYPICALLY IMPLEMENTED AFTER A FORMAL CONTRACT IS IN PLACE.

sources were possible in greater detail than data typically available as part of an EMD proposal. This proved true even through Alpha contracting.

The planning to support an Integrated Baseline Review (IBR) became the basis of the "contractors' proposal," and the evaluation and acceptance constituted the "negotiation." As a result, the Comanche approach captured several unique program advantages:

- Seamless program plan to transition from Demonstration/Validation to EMD without typical administrative delays.
- Clear understanding of work scope "included and excluded" in the program to be executed, thereby minimizing downstream surprises.
- Executable plan from Day 1.
- Clear understanding of program risks and assurance that risks were balanced within program elements.
- Substantial programmatic and technical details to support the Milestone Decision process.
- Significant savings in time and resources since the planning was accomplished one time to serve as the proposal and the execution baseline.

The Comanche program had a number of unique attributes that affected, both positively and negatively, the ability to implement such an aggressive strategy.

Sole Source Contractor

Naming Joint Venture as the prime contractor, with Boeing and Sikorsky as co-primes, resulted in both positive and negative aspects of program management. Assuring the best corporate expertise was applied throughout the scope of activities, while simultaneously maintaining appropriate work share between the two co-primes, became an ongoing challenge. However, without the sole source environment, the aggressive planning and negotiation process would not have been possible.

Program Acquisition Strategy Redirection (July 1998)

The requirement to significantly accelerate portions of the program and make available production representative aircraft at the point of Independent Operational Test and Evaluation (IOTE), all within established (reduced) schedule and cost constraints, created an environment with incentives and urgency for other than a "business as usual" approach by the acquisition community. However, it became increasingly evident that different elements of the acquisition community react very differently to any perceived "change" in the established processes and procedures.

Program Organization

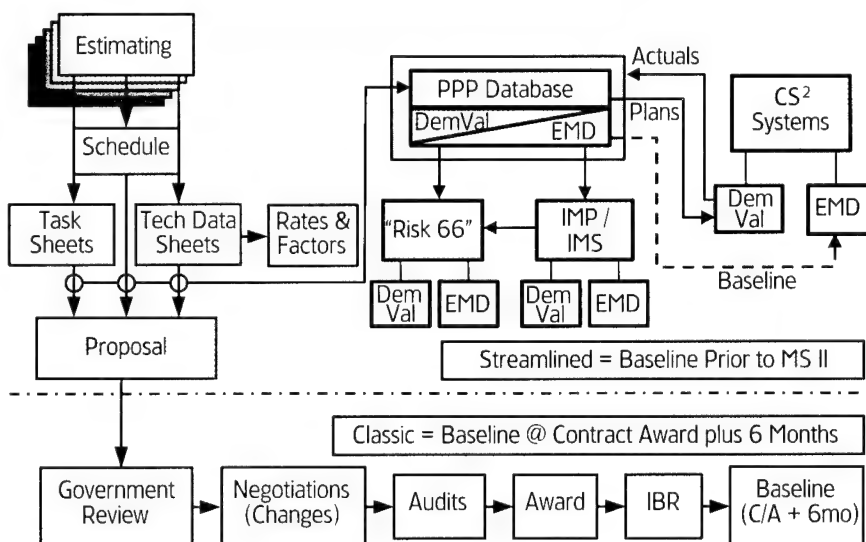
The implementation of a hierarchy of Integrated Product Teams (IPT), established to manage their portions of the program within both the government and contractor teams, provided the basis for allocating responsibility and accountability for each aspect of the program. This became critically important when accomplishing the necessary programmatic and technical trade-offs necessary to "fit" the program within the technical, schedule, and resource constraints. Ultimately, the IPT hierarchy gave Comanche the opportunity to conduct necessary trades at lower levels and subsequently integrate to higher levels, assessing the implications at each successor level and adjusting accordingly (Figure 1).

Revising the Acquisition Process

Comanche began the process of adapting the strategy to the revised requirements by establishing complete program plans and estimates to meet the complete set of requirements from the top down, meaning allocations were made to each program area through the Analysis Integration Teams (AIT). AITs are organizations representing major aspects of the program (e.g. Airframe, MEP, Flight Controls, etc.). Each AIT is further broken into IPTs that are responsible for distinct technical/scope activities.

Initial allocations flowed to the AIT level were evaluated for impacts against previous plans and estimates and were developed for areas that would require trade-offs between requirements, resources, and schedule. Each AIT developed a program plan specifying the necessary technical and programmatic changes needed to meet stated allocations. Since the contractors were totally involved in the process, the basis for estimating and planning the subsequent EMD program was evolving in a real-time mode, which further assured clear understandings of scope and commitments at the working level. Each Comanche IPT organization is directly responsible for specific Work Breakdown Structure (WBS) elements, facilitating documentation and implementation of

FIGURE 2. Proposal Streamlining Advantage



subsequent plans and schedules into Earned Value Management Systems (EVMS) already being implemented by the contractor teams.

Balancing Risks

As the results of the re-planning and revised requirements (what could be accomplished) were integrated at higher levels, additional trades were made within the responsibility of each AIT. At each level, we evaluated risks against the overall program and redirected as necessary to assure that balance was maintained. The iterative process continued until each AIT had achieved a program that met overall objectives and was within acceptable risks.

The culmination of the Comanche restructuring process leading up to the Milestone II Review was the conduct of an Integrated Baseline Review (IBR). Each AIT, IPT, and all WBS elements were reviewed for Scope, Time Phased Resources, Schedule, and Program Risk. The planning data supporting the IBR served not only as the contractor proposal, but also the actual data entered into EVMS systems for continued execution of the program.

Internal Resource Limitations

Although the overall process resulted in a successful Milestone II decision and what is considered an executable program, we encountered shortfalls. Overcoming them through sound planning,

estimating, and trade-offs, while simultaneously continuing the necessary technical development, placed a substantial strain on program resources. Those directly knowledgeable and responsible for the ongoing efforts were the same as those necessary to effect trades to develop the restructured program.

The investment in developing the greater-than-normal level of detail caused lower-than-expected contract performance during the preparation and conduct of the milestone decision process. Although this will generate near-term challenges in the schedule execution of EMD, the program office's confidence in, and insight into, the resulting program plans will far exceed the investment and pay substantial dividends throughout program execution.

Aggressive Program Action vs. Standard Decision Process

Even though the Comanche program was instituting an aggressive government/contractor team process to "fit" the program within defined constraints, it became increasingly apparent that communicating the results of such a dynamic process to the decision makers through their respective staffs, particularly in light of the constant changes taking place, was difficult at best. The rate of change, although part of the process, made it difficult for those not intimately involved to appreciate the overall implications to the program.

Once again, the Comanche's bold and aggressive program strategy proved its worth. The resulting program performance requirements, associated schedules, resource needs, and EMD contract package, collectively developed and refined during this process, represented the revised Comanche Program as presented and approved by the Army and Defense Acquisition Board April 4, 2000 (Figure 2).

Lessons Learned

A number of lessons learned emerged from our MEP planning efforts.

- We initially failed to effectively use local Defense Contract Management Agency offices by not making them more active members of the IPTs.
- Contractors had problems dealing with the new abbreviated processes, e.g., estimating vs. planning and pricing processes. The contractor did not have an approved Alpha contracting process that would allow certification

of the contract price as fair and reasonable without going through the traditional proposal estimating process, even though it was not required by the government.

- Although all Overarching Integrated Product Team (OIPT) members were invited to participate in the IBR process, few were able to take advantage due to schedule and workload constraints. Those that did participate were primarily in a data-gathering mode rather than taking an active role in the internal decision-making process.
- The amount of time and effort required between the completion of the IBR and the Milestone Review was grossly underestimated. Pre-briefs and follow-up actions to address various issues constituted a full-time job.

Major Payoff

Overall the Acquisition Reform Initiatives employed by Comanche during the Milestone II decision preparation were

extremely successful. Establishing an EMD Contract Baseline, although preliminary, allowed an unprecedented understanding of the program and its associated risks. The major payoff from the process came from direct involvement by the "stakeholders" (user, developer, contractors) in making the critical cost, schedule, and performance trade-offs with sufficiently detailed information.

In essence, the whole EMD planning process was driven by Cost As an Independent Variable (CAIV) methodologies. The result of investing the time and effort in the early IBR was that the Army got the utmost out of the Comanche MEP for the resources available, while known risks and trade-offs were made in sufficient time to support the Milestone Decision process.

Editor's Note: For more information, visit the Comanche PMO Web site at http://www.comanche.redstone.army.mil/logo_rah.html.

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Comanche and "Alpha" Contracting

Not Just an Approach

SAMUEL B. HUFFSTETLER

The term "Alpha" contracting may sound a bit mysterious to those outside the acquisition community. But as its name implies, Alpha contracting is simply involving the principals first or at the *beginning* before getting down to serious business. For those who prefer a more formal definition, Alpha contracting could be described as:

A practice wherein the government team meets with the corresponding contractor team prior to negotiation to consider where cost differences and technical misunderstandings exist. Together, they work to resolve their differences and misunderstandings to the maximum extent possible during the period of interaction.

From a Contracting Perspective

The capstone article by Army Maj. Gen. Joseph Bergantz at the beginning of this series of articles on the Comanche RAH-66 program describes several acquisition reform initiatives included in the procurement process for this twin-engine, state-of-the-art advanced technology helicopter. Among the many initiatives key to the success of the Comanche program, I consider the following most significant from a contracting perspective:

- Alpha contracting, using an Integrated Product Team (IPT) structure to plan, develop, and formalize the Comanche EMD requirement and resulting proposal.
- Cost As an Independent Variable (CAIV) principles to assure cost-effective

management and continuous attention to cost-benefit trade-offs.

- Technical requirements located in a single performance work statement with simplified language.
- A Performance Weapons System Specification (PWSS) establishing performance-oriented requirements for the production RAH-66 helicopter.
- Use of common commercial items wherever possible (Pentium processors, high reliability commercial components, etc.).
- Paperless contracting approach with electronic submission of the EMD proposal. (Joint servers and Web-based technology were extensively used for electronic information exchange.)

This article focuses on how we, the Comanche RAH-66 Program Management Office (PMO) made the Alpha contracting approach work for our program.

The Plan

The Alpha contracting approach used to restructure the Comanche program centered on development of a plan to minimize overall program disruption during the procurement process. Considerations included:

- Establishing ground rules and processes required for obtaining a successful Milestone II decision and a mutually agreeable (government and contractor) EMD Program within the funding available.
- Developing a global Statement of Work (SOW) to cover the remaining Demonstration/Validation (Dem/Val) effort and the follow-on EMD requirement.
- Establishing a Program Steering Committee to resolve discrepancies.
- Closely monitoring Dem/Val progress to minimize cost and schedule variances.

Figure 1 is a flowchart of the Alpha contracting process. The remainder of this article is devoted to examining the process more closely.

Establish Ground Rules and Processes

Following receipt of Office of the Secretary of Defense (OSD) direction to proceed with planning the revised Comanche program, the parties, consisting of the Comanche government team and Boeing-Sikorsky contractor team, convened to establish basic technical, programmatic, and pricing ground rules to initiate the Alpha contracting process. We considered the basic ground rules instrumental in understanding the major components of contractual documents such as the SOW and PWSS.

The amount of government funding available to the Comanche Program was public knowledge. By taking the Comanche Airframe funding line, we allocated budgets across the respective Analysis and Integration Teams (AIT). The AITs then further allocated budgets to the Integrated Product Teams (IPT) that make up the AITs. Figure 2 provides the Comanche AIT/IPT structure.

This process represented the first step in aligning the appropriate budget with the work to be performed. Getting to final cost closure — defined as the parties' commitment to perform the revised program within the available funding — was an iterative process that included weekly status meetings.

For planning purposes, we issued a modification under the existing Dem/Val contract that identified the period of performance of the total Comanche revised program as Oct. 1, 1998, through Dec. 31, 2006. A Milestone II Engineering and

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Manufacturing Development (EMD) decision was tentatively scheduled for March 2000; and a Milestone III (Full Rate Production) decision was tentatively scheduled for December 2006.

Our plan was to execute the revised program under two separate contractual instruments: (a) the period of performance from Oct. 1, 1998, through March 31, 2000, continued under the existing contract and would be defined via a subsequent modification; and (b) the period of performance from April 1, 2000, through Dec. 31, 2006, would be proposed in accordance with the EMD proposal preparation instructions and awarded as a separate contract (the "EMD Contract").

After deciding on two separate contractual instruments, we solicited the requirement for the EMD portion of the existing program in accordance with Federal Acquisition Regulation 15.405, Solicitations for Information or Planning Purposes. A determination had been made to obtain EMD proposal planning information prior to

EARLY ESTABLISHMENT OF THE PSC [PROGRAM STEERING COMMITTEE] AND THE CLOSE WORKING RELATIONSHIP ALREADY IN-PLACE BETWEEN THE GOVERNMENT AND CONTRACTOR TEAM WERE MAJOR CONTRIBUTORS TO ELIMINATION OF THE FORMAL PROPOSAL EVALUATION BOARD NORMALLY ASSOCIATED WITH THE PROCUREMENT OF MAJOR WEAPONS SYSTEM DEVELOPMENT CONTRACTS.

the government preparing and obtaining the final justification and approvals necessary to officially issue the EMD requirements. Upon receipt of these approvals, subsequent guidance would be provided.

Global Statement of Work

The change order modification included a draft SOW that was jointly prepared by the government and the contractor covering the entire program. It was understood and agreed that in proposing the EMD effort contemplated by this modification, the government and contractor would further modify the SOW to accommodate the EMD period of performance; and further define the effort remaining under the existing Dem/Val contract.

It was further agreed that any future changes to the SOW and PWSS would continue to be documented, reviewed, and approved in accordance with a jointly established Request for Resolution (RFR). The RFR process established a uniform method of resolving issues identified by the government

or contractor that could not be resolved at the AIT level.

Program Steering Committee

Unresolved issues were presented to the Program Steering Committee (PSC) for discussion and resolution. The PSC was made up of senior-level management from the government and the Boeing-Sikorsky team. Early establishment of the PSC and the close working relationship already in-place between the government and contractor team were major contributors to elimination of the formal proposal evaluation board normally associated with the procurement of major weapons system development contracts. Major savings in time, personnel, and other resources within the PMO were the result.

To better define the interim goals necessary to prepare, evaluate, negotiate, and execute the revised Comanche program (including the follow-on EMD requirement), the Comanche PMO and the Boeing-Sikorsky team established a mutually acceptable framework for those activities in the form of a "Partnering

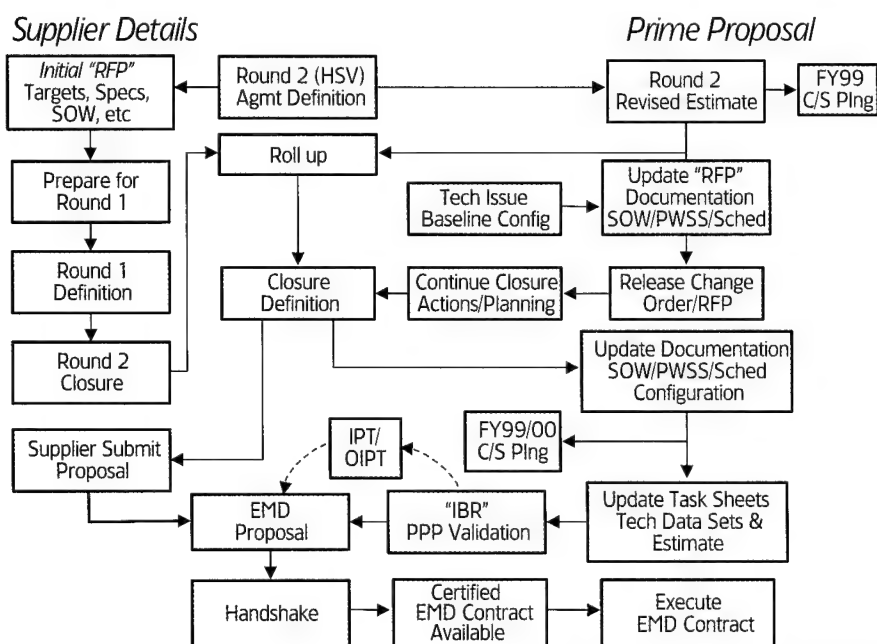


FIGURE 1. Alpha Contracting Process

Agreement" Memorandum of Understanding (MOU). The partnering agreement included a mandatory format for development of the cost and task sheets by Work Breakdown Structure (WBS). Using this format, the IPTs formalized their planning estimates. In many instances, there was a need to realign cost estimates for specific WBSs. To adequately show the shift of costs within the respective companies, cost elements, and AITs/IPTs, we implemented a process known as Request for Cost Adjustment (RFCA).

I believe that the following key elements were necessary to accomplish the goals set out in the partnering agreement:

Commitment

- Maintain the integrity of the AIT/IPT process.
- Maintain senior management support.
- Empower AIT/IPT leaders and members.
- Build trust and confidence.
- Clearly define and communicate requirements.
- Make and support timely decisions at the lowest possible organizational level.

Communication

- Involve Defense Contract Management Agency (DCMA) and Defense Contract Audit Agency (DCAA) throughout the process.
- Share contractor estimates and government evaluations as early as practical, feasible, and allowable.
- Flow down requirements to subcontractors as early as practical and feasible.
- Work together better and smarter.
- Solve problems up-front.
- Eliminate unnecessary documentation.

Cooperation

- Promote increased "Teamwork."
- Eliminate adversarial relationships.
- Promote involvement between the government and Boeing-Sikorsky in program model contract development.
- Promote achieving agreement on program requirements and needs at the functional level through the AIT/IPT process.

To further promote the Alpha contracting approach, the government and Boeing-Sikorsky developed an additional MOU that included the DCMA and the Procuring Contracting Officer in addition to the PMO and the prime contractors. The responsibilities of the cognizant DCAA [Defense Contract Audit Agency] were included. The MOU laid out specific organizational responsibilities for all the agencies.

Our approach incorporated current principles and policies regarding government-industry cooperation to achieve common goals while maintaining sound business practices.

During the Alpha contracting process, the parties maintained a model contract to continually document the terms and conditions as agreements were made. The government reviewed the subcontract solicitations prior to issuance to ensure compliance with ground rules and the Alpha contracting approach.

The initial government evaluation of the total proposal identified some areas of concern that we resolved through use of the Error, Omission, Clarification, and Deficiency (EOCD) process. The EOCD process would further be used for all subsequent proposal updates.

The government formally requested an update to the baseline proposal to in-

corporate tentative agreements to date. As a result, we submitted a proposal update entitled "Baseline Update Addendum" after the first review of the initial proposal. Subsequently, we submitted an additional proposal to incorporate a fiscal 2000 Congressional Funding Plus-up and fiscal 2001 Program Objective Memorandum (POM) Funding Plus-up. This approach gave the government better visibility into the details of each update.

A Major Milestone

The parties successfully concluded negotiations on Feb. 23, 2000, and agreed to a Cost Plus Award Fee (CPAF) of \$3,150,558,202. Boeing-Sikorsky agreed to finalize all documentation and execute their portion of the contract on May 2, 2000.

In a formal signing ceremony on June 1, 2000, the government fully executed the follow-on EMD contract, thus signifying not only a major milestone in aviation modernization, but also recognizing the hard work, trust, and teamwork that made it possible.

Editor's Note: The author welcomes questions or comments on this article. Contact him at Sam.Huffstetler@comanche.redstone.army.mil.

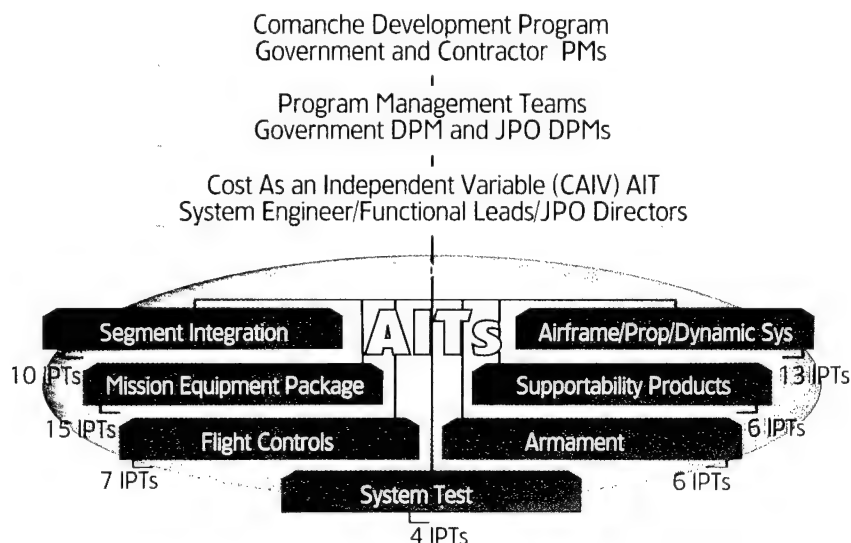


FIGURE 2. Comanche AIT/IPT Structure

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OBJECTIVE

The purpose of this forum is to address fundamental changes in this nation's acquisition system, engaging leaders of Congress, the new Administration, the military, principal corporations, and investors in this endeavor. This is the most timely opportunity to assess the current status of defense reform and address future initiatives in an effort to assist the new Administration in setting its defense priorities and reform agenda.

DISCUSSION TOPICS

A Critical Look at Acquisition Reform —
"Reviewing the Record and Essential Next Steps"

**Setting the New Defense Priorities and
Reinvigorating the Acquisition Reform
Agenda —** "The Hill's Perspective"

**DoD and the Defense Industry
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DEFENSE NEWS



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Comanche Crew Station Development

"Mockpit" Lets Comanche Fly in Simulation Long Before Actual Aircraft Production

LT. COL. DEBORAH J. CHASE, USA • ROBERT R. COPELAND
RONALD J. FERRELL

During the two years leading to Engineering, Manufacturing and Development (EMD) Milestone approval in April 2000 for the Comanche RAH-66 advanced technology helicopter, the Army Training and Doctrine Command (TRADOC) System Manager (TSM), Program Manager (PM), and industry team initiated design and process improvements related to both physical and cognitive aspects of Comanche's crew station design. These improvements, made possible only by recent unprecedented advances in computer processing technology, allowed the Comanche program to maximize user involvement early in the process of designing a weapon system with the best possible pilot-vehicle interfaces.

Modeling and Simulation, Computer Aided Design

A variety of modeling and simulation tools provide the means to obtain feedback from developmental test pilots and Army aviators with combat experience. Computer Aided Design tools and other leading-edge human engineering models and simulations allow the weapon system developer to iterate potential airframe design solutions to satisfy issues arising from the user feedback. And, simulations allow the materiel developers to evaluate how well the crew station design accommodates human cognitive

processes to ensure the crew workload and pilot training techniques are effective.

"Growing the Cockpit"

Based on user input and a preliminary Army Research Laboratory-Human Research and Engineering Directorate (ARL-HRED) evaluation indicating that the Comanche cockpit may have been too small, a Crew Station Process Action Team (CSPAT) was formed that included members from the Aviation Technical Test Center, Aviation Research and Development Center, the ARL-HRED, and the program office/industry team. The question, "Do we need to grow the cockpit?" needed to be answered prior to the Weapon System Design Review, six months away at the time. The impact of "growing the cockpit" would be substantial, including expansion of the existing aircraft outer mold line.

Historically, "human factors" engineers evaluated the adequacy of a cockpit design after an aircraft was built, taking measurements in the aircraft itself. Although two prototype aircraft existed at the time of the study, planned design changes for future aircraft would further impinge on cockpit volume. Also, the total population required to be accommodated within the cockpit increased in 1996 after design of the existing prototype aircraft. Fortunately, significant improvements over the past five years in human engineering tools and human figure modeling allowed the CSPAT to conduct an "early intervention" without need for an actual aircraft.

The first step in answering the overarching question about the cockpit was to



FaroArm

resolve a longstanding disagreement about the design eye point (DEP). Because of perceived flaws in previous analysis based on helicopters with floor-mounted cyclics and questions about formal guidelines, the CSPAT decided to determine the actual measured eye reference point (MERP). The CSPAT's hypothesis was that a pilot using a side-arm-controller would sit in a more erect posture than one using a cyclic control.

We developed a methodology to locate the MERP, which included placing 20 subject aviators, including TSM pilots, in the full-scale Comanche mockup. We then used a FaroArm to measure the location of specific anatomical features. The FaroArm, originally designed for surgical applications, measures a point location in three dimensions to 2-sigma accuracy.

The evaluation concluded that none of the earlier DEP analysis and guidelines adequately predicted the MERP. We were left with two alternatives for the application of our data: a major redesign, or

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a minor redesign in such a way as to place the MERP as close to the Comanche DEP as possible. We proceeded with the latter, since the variances were minor and fewer perturbations were created in the total aircraft design.

Once the industry-government team was satisfied that the DEP was properly placed, it proceeded to determine whether the cockpit design provided adequate knee clearance; a specific concern to the TSM pilots and the ARL-HRED preliminary evaluation. The CSPAT evaluated knee clearance accommodation in three segments.

- First it was necessary to take measurements in the aircraft using the



Transom Jack Model

FaroArm to ensure that the computer-graphic-aided 3D interactive applications (CATIA) data accurately represented the actual aircraft.

- Second, we needed to use the data we collected to conduct modeling using Natick-developed human figures to represent the required population in the Transom Jack model. Transom Jack allows the modeler to place figures of varying dimensions in a cockpit built with CATIA design data. The human figure modeling effort allowed us to develop recommendations for the design engineers.
- Finally, to quantify the population that the cockpit accommodated in various



THE TEAM CAN FLY THE COMANCHE CREW STATION CONFIGURATION IN SIMULATION AS MUCH AS 18 TO 24 MONTHS PRIOR TO ITS IMPLEMENTATION INTO THE ACTUAL AIRCRAFT.

design iterations, the CSPAT sought the help of Naval Air Warfare Center Crew Station (NAWC 4.6) to conduct statistical modeling similar to that which they developed for the Joint Primary Aircraft Training System. Based on the CSPAT's input, the crewmember's seat was redesigned from one that adjusts on a single axis to one that allows dual-axis adjustment. The CSPAT's effort showed that expanding the outer mold line was not necessary. Comanche will provide the necessary anthropometric accommodation for knee clearance with a seat redesign.

The CSPAT has continued its collaboration with industry, the user, and NAWC to identify design changes that will improve accommodation for both reach and ingress/egress requirements in the same fashion as was accomplished for knee clearance.

Process Improvements

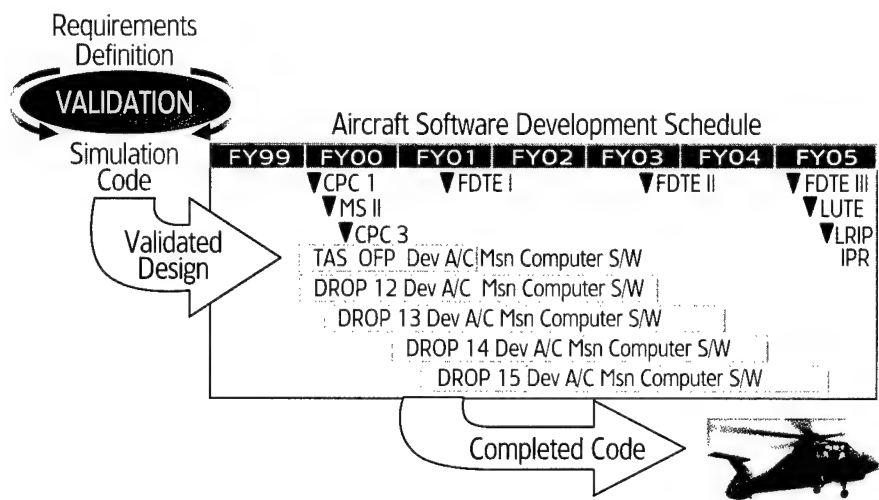
While the anthropometric evaluation was ongoing, we developed a Crew Station Working Group (CSWG) Charter with subordinate teams to address issues related to each of 21 crew station components. The charter defined the process for identifying issues (any member may raise an issue) and specified that membership on each of the component teams would include prime contractor crew station designers, software engineers, PM representatives, Combined Test Team (CTT) pilots, and TSM pilots.

The CSWG Charter further specified the process for elevating issues that could not be resolved at the component team level. The forum has resulted in an opportunity for the materiel developer to solicit input from the user and for the input to be integrated into the design. The process improvements have allowed the CSWG to resolve a substantial number of pilot-vehicle interface (PVI) issues.

Cognitive

While the Operational Requirements Document and Performance Weapon System Specification identify the requirements, the prime contractor's Pilot Vehicle Interface Mechanization Specification details how the requirements for PVI will be met. Physical design requirements are straightforward compared to narrative descriptions of functionality such as display menu structure and flight symbology.

To limit potential misunderstandings, Sikorsky Aircraft (SA) developed a cyclic process of requirements definition and simulation to ensure that the more abstract aspects of crew station were understood and met the requirement before writing aircraft code. eDesktop simulation capability at the geographically disparate locations of the TSM, CTT, PM, and SA make it possible for all



Requirements Definition and Simulation

members of the component teams to see the same picture and limits misinterpretations of text.

Enter the "Mockpit"

We coined the term "mockpit" to describe the virtual cockpit, which is comprised of a Silicon Graphics O2 computer and virtual prototyping software. The reusable crew station simulation code is written in C++, copied to a CD-ROM as an executable file, and mailed to each of the mockpit locations. The team can fly the Comanche crew station configuration in simulation as much as 18 to 24 months prior to its implementation into the actual aircraft.

On a larger scale, SA recently restructured its Cockpit Analysis Program into a three-phased design validation using a combination of simulation environments.

PHASE I

In Phase I, CTT and TSM pilots evaluate individual design components using the mockpit and other virtual prototyping tools.

PHASE II

During Phase II, the CSD team combines the individual component designs with an evaluation of the crew station design impact on human performance and aircrew workload during mission segments using CTT and TSM pilots in the Sikorsky full-motion engineering design simulator (EDS) at Stratford, Conn.

PHASE III

Phase III, also performed in the EDS, will be a single-ship, full-mission simulation using U.S. Army Forces Command pilots as participants. It is timed to precede Force Development Test and Experimentation I, a multi-ship, full-mission event. During the first two phases of the validation process, we expect results related to crew station design. Although we expect to continue learning about the design in Phase III, the emphasis will shift to a focus on learning how to train new Comanche pilots.

Comanche RAH-66 — Classic Example of Simulation Based Acquisition (SBA)

The Comanche team's use of modeling and simulation tools to evaluate the physical and cognitive aspects of the Comanche cockpit is a classic example of SBA techniques. The simulations enhance user participation in the design process and support process improvement initiatives. The combination of these tools and earlier, continuous user involvement in the design process results in prompt identification and resolution of potential design problems and prevents cost and schedule impacts from significant problems found late in a program's life cycle.

The Comanche team's efforts will ensure that the EMD aircraft are ready for user testing, and will result in a far superior Comanche product at Milestone III.

Editor's Note: The authors welcome questions and comments on this article. Contact Chase at chased@comanche.redstone.army.mil; Copeland at bob.copeland@comanche.redstone.army.mil; and Ferrell at ferrellr@comanche.redstone.army.mil.

NEW COTS AND COMMERCIAL ITEM GUIDE RELEASED

The new Commercial Off-the-Shelf (COTS) and Commercial Item Guide, *Commercial Item Acquisition: Considerations and Lessons Learned*, was published online July 24. Released by Assistant Secretary of Defense (Command, Control, Communications and Intelligence) Arthur L. Money, and Under Secretary of Defense (Acquisition, Technology and Logistics) Dr. Jacques S. Gansler, the Guide is designed to assist DoD consumers in acquiring and supporting commercial items.

According to both officials, "We [DoD] must expand the use of commercial items in DoD systems so we can leverage the massive technology investments of the private sector; reap the benefits of reduced cycle times; faster insertion of new technologies; lower life cycle costs; greater reliability and availability; and support from a robust industrial base ... We encourage you to learn from it and use it as you design your acquisition strategies."

Editor's Note: The Guide may be downloaded from the Deputy Under Secretary of Defense (Acquisition Reform) Web site at www.acq.osd.mil/ar.

Comanche – A Logistician's Perspective

Complete Flow of Information Vital

CHARLES J. READING

Getting through the Comanche Advanced Technology Helicopter Milestone II (MSII) Review was a challenge similar to flying. "Hours of boredom intermixed with moments of panic." In this article, I will try to pass along those things done correctly and, more importantly, those things we did wrong and would do differently in the future. These, I believe, are *all* lessons learned that may ultimately be of some benefit to the acquisition community at large.

Document — And Start Early!

One of the earliest lessons learned concerns preparation of program documentation (Figure 1). Start this process as early as possible. A large number of program documents are the responsibility of the Logistician. Those documents prepared in-house are generally controllable; that is, you can determine a schedule and track progress on a daily basis. However, when those same documents are sent to other areas for review and approval, you lose control and, on some occasions, spend an inordinate amount of time trying to get someone within the approval organization to take the time and effort to review and approve your document. Those documents that you are responsible for, but are prepared by other organizations, will give you many sleepless nights.

Much to our amazement, not everyone from outside organizations believed that successful completion of the Comanche MSII was the single most important event in their lives and that they should immediately drop the rest of their priorities and finish any Comanche-related work. It took lots of coercion, several phone calls, and personal visits to get

everything completed and approved on time.

Lesson Learned

Start program documentation as early as technically possible.

Get Senior Leadership Buy-in

Approximately five months before the actual milestone, the Comanche Supportability Division hosted a meeting in Huntsville, Ala., and presented a very detailed eight-hour overview and status of all logistics work completed in

Demonstration/Validation, and planned for the Engineering and Manufacturing Development (EMD) phase. We invited several high-level Department of Army (DA) and Office of the Secretary of Defense (OSD) personnel to this meeting to bring everyone up to speed on our initiatives.

The following day we traveled to the Sikorsky Flight Test Center in West Palm Beach, Fla., to observe how the Supportability/MANPRINT [Manpower and Personnel Integration] initiatives actu-

Document	Document
Acquisition Program Baseline	* Health Hazard Assessment Report
Acquisition Strategy	* Independent Safety Assessment
Affordability Assessment	* MANPRINT Assessment
Army Cost Position	* Human Engineering Assessment
* Basis of Issue Plan	* Manpower, Personnel, and Training Assessment
Component Cost Analysis	* Soldier Survivability Assessment
Contract Cost Data Reporting Plan	Analysis of Alternatives (AoA)
Cost Analysis Requirement Description	C4I Support Plan
Full Funding	CIO Assessment
Independent Estimate of Life Cycle Cost	Comanche Software Development Plan
Low Rate Initial Production Quantities	Critical Operational Issues and Criteria
Program Life Cycle Cost Estimate	* Exit Criteria
Modified Integrated Program Sum (MIPS)	International Cooperative Opportunities
* Sustainment Cost Management Annex (SCMA)	Industry and Technical Base Capability
* Transportability Report/Engineer Analysis	Live Fire Test and Evaluation Strategy
* Configuration Management Plan	Operational Requirements Document (ORD)
* Distribution Plan	Performance Weapon System Specification
* Programmatic Environmental, Safety, and Health Evaluation	Risk Management Plan
* Supportability Plan	System Evaluation Report
* System MANPRINT Management Plan	System Threat Assessment Report
* System Training Plan	Test and Evaluation Master Plan

FIGURE 1. Milestone II Documentation

Reading is the Chief, Supportability Division, Comanche Program Management Office, Redstone Arsenal, Ala.

ally influenced the design of the Comanche. Proving very beneficial, this action ensured our senior leadership fully understood and endorsed our Supportability program. We subsequently gave this same briefing to the U.S. Army Materiel Command and the U.S. Army Aviation and Missile Command working-level and supervisory personnel.

Lesson Learned

Make sure your Supportability briefing is presented outside the Pentagon; it's the only way you will get enough time with senior leadership to tell your story. In addition, the review of actual hardware carries more of an impact than all the charts you can develop in a month.

Ensure Directives Are Met or Waived

In July 1999, the Under Secretary of Defense (Acquisition, Technology and Logistics) published a letter requiring that Acquisition Category ID (ACAT ID) programs address Department of Defense depot and industry capabilities and capacities no later than the MSII Defense Acquisition Board (DAB). The Army Acquisition Executive further supported this requirement. We became aware of the requirement in November 1999.

It had always been our intent to perform this analysis, though not before the MSII DAB. In fact, we had programmed funding and planned for resources in the 2003 time frame, which allowed a window to adjust for new processes and economic changes prior to the award of any support contracts (Figure 2). Due to the short suspense, and in response to the new OSD/DA directive, we immediately requested a waiver and moved the programmed study to the left as far as possible: Calendar Year 2001. While waiting for a waiver, we briefed every organization that we believed had a vested interest in our program to show that our new schedule fit within the spirit of the guidance. We received no opposition to our plan.

In January 2000, we received a waiver from DA allowing the program to proceed to the MSII DAB.



IT TOOK LOTS OF
COERCION, SEVERAL
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PERSONAL VISITS TO
GET EVERYTHING
COMPLETED AND
APPROVED ON TIME.

Although everyone who was briefed at OSD agreed with our approach, when the time came to "check the boxes," we had not staffed the waiver with all the right offices.

Lesson Learned

What appeared to be a minor issue could have affected our Milestone approval date. When there is a clear directive to conduct an activity, the results of that activity or appropriate waiver must be submitted to the requiring office for approval. As a minimum, coordination should be accomplished as soon as possible.

Don't Neglect Operational and Administrative Requirements

At this point, it is appropriate to discuss the last four weeks leading up to the Milestone. The Comanche/Washington pre-brief team consisted of the Program Manager, Deputy Program Manager, and the Chiefs of the Technical, Programs, and Supportability Divisions. We had a small office in Crystal City, Va., and used that as our base of operations. We pre-briefed one or two organizations each day leading up to the DAB, then met each evening to compare notes and revise (if required) the core briefing for the next day. This system worked very well, and allowed a complete flow of information across all areas.

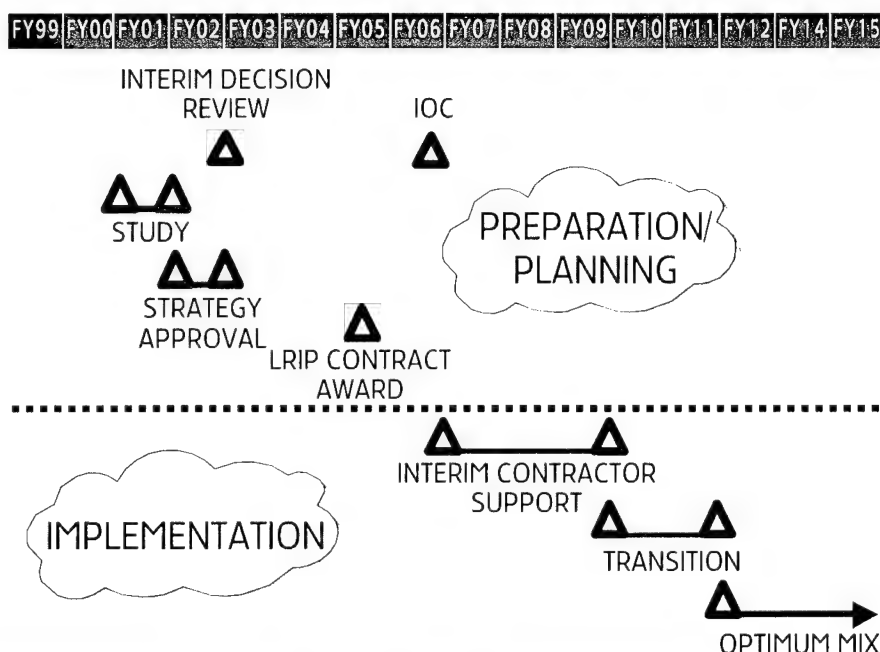


FIGURE 2. **Comanche Support Plan**

Lessons Learned

- *Find a good duplicating machine with lots of toner and paper.* It will soon become your best friend.
- *Bring your own laptop computer.* Don't depend on anybody for computer support.
- *Bring every chart you have on every subject.* Sooner or later, someone will ask you a question, and the chart you need will be at home.
- *If you're not already a PowerPoint expert, become one before you head to Washington.*
- *Be prepared to put your personal life on hold.* This is not the time to try to paint the kitchen on weekends.

Be Alert to Potential "Showstoppers"

Now, let me relate one near fatal mistake that almost derailed the entire Milestone process. It concerns Comanche Reliability going into the Initial Operational Test and Evaluation (IOT&E). The pro-

gram intent was to show that the aircraft design was mature enough to meet 90 percent of the Operational Requirements Document (ORD) reliability requirements by the end of IOT&E. This was to be achieved via a combination of demonstrated reliability and expected reliability growth from fixes that could not be installed on the IOT&E aircraft, due to schedule constraints.

We learned within the last two weeks prior to the Milestone II decision, that the operational test community desired near-ORD reliability to be actually demonstrated prior to entering IOT&E. After several meetings in the final week, just prior to the DAB, a compromise was reached that the Comanche would demonstrate approximately 70 percent of the ORD reliability requirement before entering IOT&E.

Lesson Learned

Establish and communicate clear and concise reliability goals, as well as the reliabil-

ity growth methodology to be used. Ensure everyone understands how reliability growth curves are developed and used.

There's Rest At the End of the Day

I sincerely hope my lessons learned will be of some value to you, and I certainly agree with the Comanche Program Manager in the first of this series of articles, that getting through a successful milestone review is indeed a highly rewarding experience and a journey that I would recommend to everyone. However, if you're going to make that trip anytime soon, please don't call me. I think I'll stay home for awhile.

Editor's Note: The author welcomes questions or comments on this article. Contact him at **Charley.Reading@comanche.redstone.army.mil**.

PROGRAM MANAGER IS FREE TO ALL!

Program Manager magazine is now free to all subscribers.

Anyone with a paid subscription through GPO will be reimbursed for their remaining paid subscription in due time. GPO has just begun the process of figuring the amount of money remaining on each paid subscription—by hand. This is complicated by the fact that each paid subscription has its own start and end date—and we had nearly 500 paid subscribers. We apologize for the long delay in this reimbursement by GPO. March-April 2000 should have begun your free subscription.

All paid subscribers were automatically added to our "free" mailing list.

If anyone you know stopped receiving PM, it may be because a nondeliverable issue was re-

turned to us, perhaps due to an office move. For instance, if your mailroom or postal carrier does not forward your PM, it is returned to us and you come off the mailing list. If we did not receive your renewal request during our mandatory renewal period, this also removed you from the list.

The rumor that PM is no longer available is obviously not true. Instead, readers are now able to get it for free!

Anyone, particularly in the private sector or overseas, interested in subscribing to PM for free can subscribe on the DSMC home page, using a home or work address, at <http://www.dsmc.dsm.mil>, or fax a request to (703) 805-2917.

What Right Looks Like

Comanche First Army Program to Use Analysis of Alternatives (AoA) Methodology

MAJ. JIMMY DOWNS, USA

Comanche was the first Army program to use the new Analysis of Alternatives, or AoA methodology. In a nutshell, this methodology combines cost, effectiveness, programmatics, risk, and item level analysis. The resulting integrated picture is presented to Army and DoD decision makers for system review prior to Milestone II.

As we, the Comanche joint study teams, looked at each other across the conference table, we realized we had never been through anything like this before. In this article, we outline our experiences and the joint study teams' methodology for putting together a successful AoA.

Building the Plan

Since AoAs are integrated efforts, our AoA team looked for something that could roll up commanders' intent and explain the overall direction. To this end, we began by developing and charting an overview or plan describing the AoA effort in time and space (Figure 1).

Our strategic planning team had to assemble all base elements that would provide the analytical underpinnings for system analysis. Figure 1 ultimately became our analytical road map, spelling out the basics, which included: Office of the Secretary of Defense (OSD)/Department of Army (DA) Guidance; Training and Doctrine Command (TRADOC) Study Plan; TRADOC Analysis Center (TRAC) Experimentation and Simulation; and the Army Materiel Systems Analysis Activity (AMSAA) — supported Cost As an Independent Variable (CAIV) and Study Advisory Group (SAG) review.

To buttress the road map, we had to provide our players with a view of the long term (Figure 2). Our team had to understand how the Comanche system affected other systems; to that end, we developed Figure 2 as an illustrative reference and example only.

The road map developed encompassed a range of scenarios designed to place the system in multiple environments, against varied threats, over a variety of missions. Comanche was consequently cast in many settings under wide-ranging conditions. Previous studies selected very few scenarios that highlighted and tested the system of interest (to the extreme). As a result, much time was spent criticizing the scenarios rather than reviewing results. Comanche's plan in-

cluded a spectrum of conflict and across-the-board scenarios.

Although all agencies/principals did not agree with every scenario, there were sufficient scenarios that everyone could find at least one to support. Scenario disagreements were eliminated, and efforts were focused on the system.

We used both high- and low-resolution models and simulation to address Southwest Asia, Northeast Asia, and European Command (EUCOM). To add depth, we provided four alternatives:

ALTERNATIVE 1

The current OH-58D and AH-64D fleet.

ALTERNATIVE 2

A fleet of AH-64D and RAH-66s.

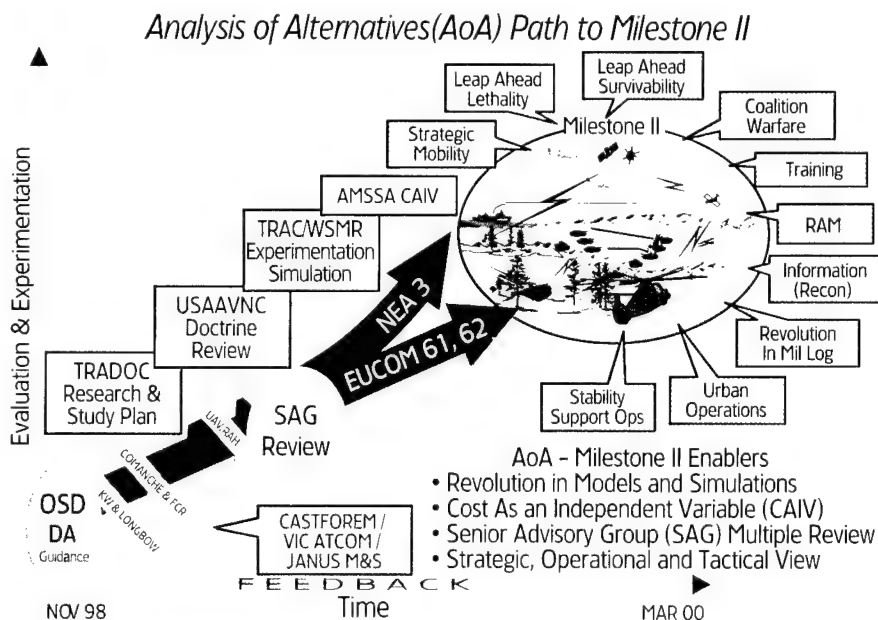


FIGURE 1. Analytical Road Map

Downs is the Comanche Program Office lead for the Analysis of Alternatives at Redstone Arsenal, Ala. He is Level III certified in the Contracting and Purchasing career field.

ALTERNATIVE 3

A similar fleet of AH-64D and RAH-66s, but with the RAH-66 degraded in Rada Cross Section (RCS), weight, and increased maintenance burden.

ALTERNATIVE 4

In addition to these three alternatives, a fourth alternative concerning a Comanche and Tactical Unmanned Aerial Vehicles (TUAV) mix was performed independently under the Manned/Unmanned concept exploration project by the Training and Doctrine Command.

The Comanche analysis incorporated multiple techniques for collaboration. An example was the parametric performance analysis and combat models. The parametric analysis compared system performance capabilities (generally key parameters that would show in the combat models) with an explanation of what this might mean in the combat models; then combat model results were provided that were consistent with the parametrics. Each method served to strengthen the results of the other.

Initial key interaction occurred between OSD, DA, the Program Manager (PM), and TRADOC. The group reviewed/developed the Comanche AoA Blue Book and Comanche AoA Reference Document. These sources provided potential alternatives previously considered and helped narrow the field to those of DA and OSD interest. From these documents, we developed a synchronization matrix to ensure all contributors understood their roles, deliverables, and timelines.

Avoiding "We" vs. "They"

The best Strategic Plan is meaningless unless executed by persistent team players (Figure 3).

TRADOC provided an independent agency (TRAC) as study lead for this new AoA process. Nevertheless, in order to execute, the PM shop had to recruit, train, and retain the right personnel. In this regard, we began by finding personnel who knew the ropes and had been through a similar process. We searched the data banks and found several retired cavalymen who had con-

ducted similar reviews in the late 1980s for Army Gen. John Foss and former Army Chief of Staff Gen. Maxwell Thurman. The "old Cavalymen" suggested plan improvements and modifications and provided a road map for success. With a clear view of the requirement, we set about recruiting the team.

This new methodology incorporated Army Staff (ARSTAFF)/OSD, and Joint Staff representation throughout the process. Accordingly, OSD Program Analysis and Evaluation (PA&E) led the AoA work group (with members from OSD, Army, and the Joint Staff) and reviewed the analysis. The analysis work was done by the Army, specifically TRAC Leavenworth, TRAC White Sands Missile Range (WSMR), and TRAC-Lee with help from the program office and user involvement from Fort Rucker, Ala. AMSAA provided overall support to the AoA.

An AoA requires tactical/operational and strategic subject matter experts (SME), TRADOC provided SME support from its schools and centers. We found many of these among the TRADOC System Manager (TSM)—Comanche Early Operational Capability unit and in the Directorate of Training Doctrine and Simulation (DOTDS), Fort Rucker. We also recruited SME help from the contractor world, specifically personnel to assist with operational planning and force structure issues at corps, division, brigade, and battalion levels. We called AMSAA for help with CAIV analysis. TRADOC provided combat model and simulation teams from TRAC and the

Air Maneuver Battle Lab (AMBL). We augmented both AMSAA and AMBL model and simulation support with contractors (Boeing, Sikorsky, and others).

Establishing Communications

The Comanche study was conducted on an accelerated schedule, and the initial In Process Reviews can best be characterized as "interesting." Clearly, we had a disparate group who individually had little stake in the outcome. Establishing clear communications and developing a team were paramount. Collectively, we cured the inherent "we vs. they" issues by insisting on team stability throughout the effort. Our aim was to make each part of the team feel responsible for the whole effort.

In this regard we began a vigorous process of inclusion. The AoA working group met at least once monthly; and the Council of Colonels and the SAG met every six to eight weeks. These groups reviewed progress of the analysis and provided guidance to redirect efforts and resolve problems along the way.

We found that we could not wait for the scheduled meetings to resolve the many "showstopper" issues that cropped up. E-mail messages seemed to breed contempt when relied on exclusively and added an impersonal quality to the problem. We found video teleconferencing useful but not readily available to all parties. During the AMSAA-supported CAIV analysis, we discovered our best means (besides temporary duty [TDY] travel) of keeping the team together turned out to be phone conferences set up for group

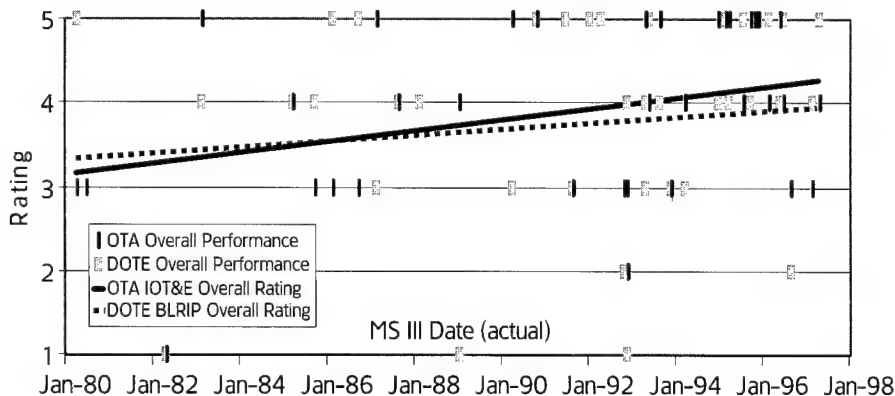


FIGURE 2. EMD Performance Trends (All Programs)

1-800 call-in. This kept things personal and tended to make players accept responsibility for specific actions. Our follow-up and mission execution increased dramatically when we began this effort.

On-site TDY trips were also essential. We had to reallocate funds for travel to ensure the many moving parts of the AoA were synchronized and completed in a timely manner. Frequent reviews, both formal SAG reviews and deskside reviews with all parties (OSD, Army, Joint Staff), were conducted to expose the emerging results and gauge the audience reaction. These reviews were also used to develop formal presentations, and allowed the SAG members to formulate questions for discussion (all parties). Additionally, this process helped scope the analysis. When sufficient information was presented to "scratch the itch," that particular issue was considered resolved, and the workforce was directed to focus on the other outstanding issues.

Involvement

Frequently scheduled briefings allowed us to bring the ultimate customer (OSD) into the process. Now, rather than being critics of the final product, OSD was involved in development of the product

(the good, the bad, and the ugly) as participants. These meetings helped form a basis for follow-on analysis and allowed us to separate any issues of interest from those not specifically pertinent.

The study director, empowered by the SAG, was the central figure responsible for total product delivery to the SAG. Presentation was orchestrated to present the results of multiple efforts in a coordinated consistent manner, to show a single effort rather than multiple efforts. This required a single ringmaster to understand the divergent efforts, coordinate the efforts, and orchestrate the presentations during the SAGs.

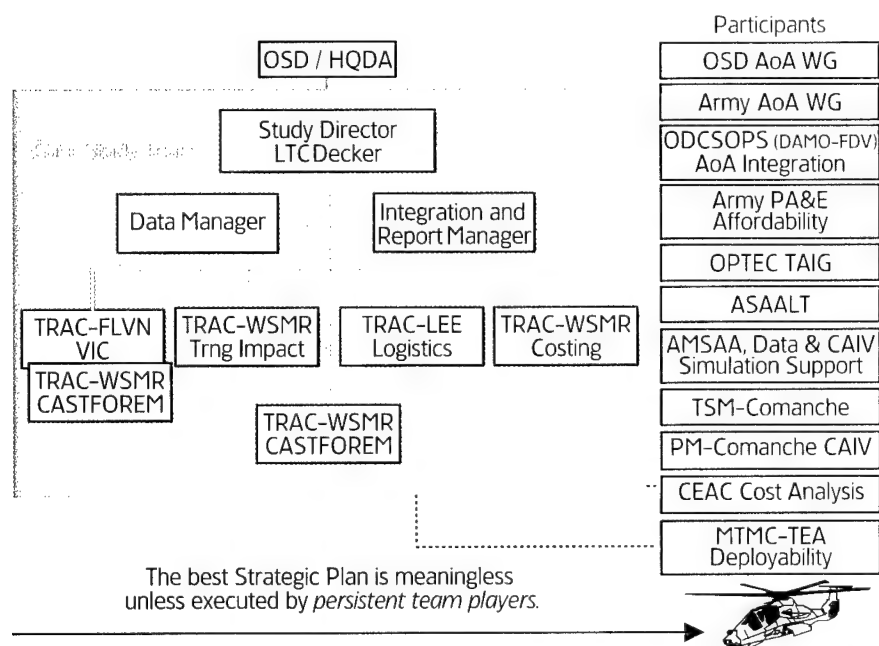
A nonbiased study director assists the AoA by providing "just the facts" and not hype. It's easier for the audience to accept a "fourfold increase in performance" than "a 400 percent increase in performance." Some past studies highlighted unique events that were usually driven by the law of small numbers (i.e., 1,800 percent reduction in losses or .2 losses compared to 3.8 losses with only one occurrence). The Comanche results were carefully screened to prevent overstatement of unique events and to qualify results with statistical significance and relative numbers.

Nevertheless, the PM shop had to ensure that the study director received the required data and that all elements of the team were responsive to his needs. When the study director required team member support, the PM shop followed up. Each team member had to justify his or her product to the study director before the SAG reviewed the item. This weeded out a lot of minor issues and ultimately resulted in a positive Assistant Secretary of the Army Review Council (ASARC) and Defense Acquisition Board.

Output

After a year of concentrated effort, study, analysis, and commitment on the part of our team, we developed the following findings, which represent a consensus of all agencies involved in the AoA effort. Operationally, the Comanche alternatives provide an improvement in force effectiveness and survivability in all cases.

- Comanche Alternatives 2 and 3 highlighted earlier in this article, cost about \$10 billion more, the lion's share of which is the actual production costs of a new aircraft.
- The Comanche force displayed more proactive and deliberate engagements at higher Operational Tempo (OP TEMPO).
- Comanche provided improved detection times and ranges, which allowed many battles to be brought to a decisive conclusion sooner.
- Comanche forces achieved earlier detection at greater ranges permitting more use of artillery, the Multiple Launch Rocket System (MLRS), and other supporting fires.
- Comanche, augmented by UAVs, reduced the overall blue losses and collateral damage.
- Comanche alternatives had enhanced reliability, availability, and maintainability at lower personnel cost, including the degraded Comanche alternative.





JECPO Receives E-Gov Pioneer Award

The Joint Electronic Commerce Program Office recently received the E-Government Pioneer Award for striving to reduce the Department of Defense's paper files and modifying its business practices to include electronic commerce initiatives. The award was presented to Scottie Knott, Director, JECPO, by Robert Mallet, Deputy Secretary of the U.S. Department of Commerce, at the E-Gov 2000 conference. JECPO was one of only 20 government agencies to receive the award.

The award recognizes all JECPO projects including the central contractor registration, DoD Business Opportunities, electronic document access, wide area workflow-receipts and acceptance, the DoD electronic mall, and the public key infrastructure. The award citation honors JECPO "for an outstanding electronic government best practice application that has streamlined operations and improved government services."

"By harnessing the power of eBusiness, JECPO has successfully launched several projects that accelerate the application of business processes within DoD while leveraging commercial technology," commented Scottie Knott, Director, JECPO.

JECPO was part of the 1997 Defense Reform Initiative. Formed in January 1998, JECPO

is organized under both the Defense Logistics Agency and Defense Information Systems Agency and is provided policy and oversight from the DoD Chief Information Officer. JECPO has a charter to accelerate the use of electronic commerce within the Department. It brings together experts from DoD's business and technology arenas to build strategic partnerships with industry in electronic commerce.

The E-Gov Pioneer Awards recognize federal, state, and local leaders who have developed innovative electronic government programs that increase productivity, save limited resources, and improve the quality, timeliness, and accuracy of citizen services.

The Defense Logistics Agency provides supply support and technical and logistics services to the military services and to several civilian agencies. Headquartered at Fort Belvoir, Va., DLA is the one source for nearly every consumable item, whether for combat readiness, emergency preparedness, or day-to-day operations.

Editor's Note: This information is in the public domain at http://www.dla.mil/public_info/jecpoawd.asp on the World Wide Web. For more information, call Maria Lloyd, (703) 765-6188.

Gansler Testifies Before Congress on Transformation of DoD Logistics

THE HONORABLE DR. JACQUES S. GANSLER

Under Secretary of Defense (Acquisition, Technology and Logistics)

STATEMENT BEFORE THE HOUSE ARMED SERVICES COMMITTEE READINESS SUBCOMMITTEE

Logistics Transformation Hearing • June 27, 2000

Editor's Note: This information is in the public domain at <http://www.acq.osd.mil/acqweb/usd/>.

Mr. Chairman and Members of the Committee: Thank you very much for giving me the opportunity to appear before you today to report to you on the transformation of defense logistics. I have submitted a prepared statement for the record, but would like to take just a few minutes to express some of my concerns about barriers to our logistics reengineering efforts and my hopes that we can somehow accelerate the rate of change and see still greater results in the near future.

What is so frustrating, Mr. Chairman, is that we are dealing with achieving the art of the possible, not with some untried and untested, "science fiction" vision of a logistics support system of the future. What we are trying to bring about in defense logistics has already been demonstrated in the commercial world. In fact, today, you can log on to the Internet, click on to a commercial resource, choose what you want, place an order, check its availability, purchase it, track its progress from the warehouse to your door, and have greater than 99 percent confidence that it will arrive at the right place at the right time.

The result of advances in information technology in the commercial world has been a new era of high customer satisfaction and vastly improved performance at much lower cost. In defense logistics, however, such advances are more apt to



What we are trying to bring about in defense logistics has already been demonstrated in the commercial world ... Today, you can log on to the Internet, click on to a commercial resource, choose what you want, place an order, check its availability, purchase it, track its progress from the warehouse to your door, and have greater than 99 percent confidence that it will arrive at the right time.

move at a snail's pace, largely due to institutional resistance, outdated systems, and numbing bureaucratic delays.

A Vicious Cycle

Our equipment is aging. We cannot replace much of that equipment in the near future. Consequently, our Operations and Maintenance [O&M] costs will continue to escalate. This results in reduced readiness — yet at increasing costs. And, unless we reverse the trend quickly and deliberately, we face what I have described as a "death spiral" — a situation where reduced readiness requires us to keep removing more and more dollars from equipment modernization and putting it into daily O&M, thus further delaying modernization, causing the aging equipment to be over-used, further reducing readiness, and increasing O&M — a vicious circle.

We now have approximately 1.25 million DoD personnel in logistics. We spend around \$80 billion on logistics support; and, in spite of these resources, we still fail to do a world-class job in dependability, responsiveness, or costs. However, our vision of world-class defense logistics — encouraged by the reality of world-class commercial support systems — sustains us in our determination that we can — and must — make our logistics transformation happen.

Having said all this, what is our strategy for making our vision a reality?

Attack O&M Costs

First, we must directly attack the problem of large and increasing Operational and Maintenance costs on our aging legacy equipment. To do this, the Joint

Staff, Military Departments, Defense Logistics Agency, and our Transportation Command are pursuing a multitude of initiatives, including 30 Pilot Programs that are designed to improve support of our existing weapons systems and provide increased reliability to our aging equipment.

Deploy Transformed Logistics System

Second, and in parallel with the initiatives designed to improve current Operation and Maintenance Costs, is the urgent need to deploy a responsive, dependable, efficient, and effective transformed logistics system. This must begin with a specific strategy; here, we have established a focused Logistics Strategic Plan and a set of actions and metrics to implement it and measure its performance. Two key elements of our strategy are the implementation of an overall 21st century logistics architecture and, most important, a modern logistics information system — one that will provide for our unique defense requirements what is already in place and working well in the commercial world. My prepared statement discusses these initiatives in some detail. This modern information system will improve the speed and precision of our logistics capabilities through improved situational awareness. Developing such a modern logistics information system is absolutely critical to our success.

Apply Lessons Learned From Pilot Programs

Lastly, we must apply all the positive lessons learned from our Pilot Programs widely and rapidly across all of our systems. Our intent has been to explore multiple strategies in these programs so that the Services can tailor product support principles to meet their specific needs.

Why Not 100 Percent?

During the past three years, we have achieved some dramatic improvement in our logistics performance. Average logistics response time (from requisition to receipt of material) has been reduced from 36 days to 14 days. Secondary inventory item levels have been reduced

by \$11 billion. And in-storage asset visibility has increased from 50 percent to 94 percent.

But why not essentially 100 percent — as is achieved by world-class operations today? And why not response times of five days — with high confidence on all deliveries? Again, *such numbers are achievable*. Clearly, we still have a long way to go. Army Chief of Staff General Eric Shinseki has stated that there cannot be an Army transformation without a logistics transformation. His vision for the transformed Army envisions rapid deployment of a brigade within 96 hours and five divisions within 30 days. Clearly, a logistics system that still requires an average of 14 days' response time is incompatible with such a rapid mobility concept.

Our specific initiatives and goals, therefore, call for modern information systems, such as the Army's Log Mod concept; total asset visibility; and a system that focuses on the customer's needs, not our capabilities. Speed and dependability are what our warfighter requires — foxhole to factory to foxhole — and we must meet those needs.

Using market forces, through competitive sourcing, can help us meet those needs with both greater performance and lower costs. (In fact, we've been finding savings of more than 30 percent, regardless of whether the winner is the public or the private sector.) We can expand the use of competitively sourced support for both new and legacy systems; expand our partnering arrangements; improve reliability and sustainability through continuous technology refreshment; expand the use of prime vendor and virtual prime vendor support; reengineer our financial processes; improve the integration of our supply chains; and create complementary/interoperable information systems, taking advantage of what is easily available in the commercial world.

It's the Warfighter

In conclusion, Mr. Chairman, I believe we can do a world-class job in logistics support. It's our responsibility both to

the warfighter and to the taxpayer. I mentioned the fact that logistics carries an annual price tag of around \$80 billion. Surely, this is fertile ground for both improved performance and for substantial cost savings. Most important, however, is our commitment to the warfighter. The warfighter relies on us for the weapons to fight with, the ammunition for those weapons, the trucks to carry those weapons and ammunition, and 100 percent confidence that those systems and their support will be there on time and in good order. The warfighter deserves nothing less and we can promise nothing less.

We clearly need your help in the future, as we have in the past, if we are to be successful. Your commitment to the warfighter is nothing less than ours, and we appreciate your support. I look forward to continuing to work with you to make this happen.

Thank you very much.

Inside DSMC



Navy Capt. Conoway Halsall joined the DSMC staff as Director, School of Program Management, and Manager, Advanced Program Management Course, effective July 1, 2000. Halsall comes to the College from Naval Sea Systems Command, where he was the Director of Aircraft Carrier Refueling Complex Overhauls. A 1978 graduate of the University of Virginia, he holds a Master's Degree in Nuclear Engineering, and he has a proven sub-specialty in education and training management.

DSMC Teams with OSD and Contractor to Meet Unique Needs of the Customer

Defense Microelectronics Activity
Prepped for I/TC Partnership

RICHARD KWATNOSKI

Defense Microelectronics Activity

What's It All About?

The Defense Microelectronics Activity (DMEA) provides solutions to the problem of microelectronics obsolescence. The Department of Defense increasingly relies on the use of "smart" weapon systems. The components that make these systems smart are the complex microelectronics devices that form their "brain." Micro-electronics technologies are extremely dynamic and now become obsolete every 18 months. This makes microelectronics the main factor driving DoD systems obsolescence and mission degradation. Advanced technologies extend the life of weapon systems by improving their reliability and maintainability while addressing the problem of diminishing manufacturing sources. The DMEA, located in Sacramento Calif., is under the authority, direction, and control of the Deputy Under Secretary of Defense for Logistics and Materiel Readiness.

The DMEA Executive Agent for Diminishing Manufacturing Sources recently approached the DSMC international faculty seeking advice and assistance with a unique international acquisition problem. DMEA believed it to be in their interest to engage in international partnering arrangements, one of the most



Kwatnoski is the Director of International Acquisition Courses, School of Program Management Division, DSMC. A member of the Defense Acquisition Corps, he is Level III-certified in the Program Management career field.

likely partners being a NATO Agency. Dealing with a NATO Agency can add complexities beyond those normally encountered when dealing with a single NATO nation.

After several informal discussions between the Defense Systems Management College (DSMC) and DMEA, we decided upon conducting a focused, tailored workshop for a small number of key

DMEA personnel, similar to our existing Advanced International Management Workshop (AIMW/PMT 304).

Contracting

DSMC contracts for certain highly specialized portions of AIMW with Jerry A. Cooke & Associates. Since DMEA desired a variant of AIMW, we were able to engage the contractor by modifying our existing AIMW contract. DSMC's Contracting & Logistics Operations Department, along with the Fort Belvoir Contracting Officer, were especially efficient in placing the necessary contract modification. In a matter of a few short weeks, the DSMC/contractor team was able to design the workshop for DMEA and place the contract modification.

Design

The final workshop design involved DSMC educational oversight and lectures on international negotiation and ethics in international programs. The contractor addressed the specialized topics of the Memorandum of Understanding (international project agree-

assignments, which they completed around midnight and submitted electronically to be reviewed by the instructor/contractor. By the start of the workshop each morning, the DMEA-reviewed products served as the basis for the activity of the day. At the completion of the workshop, the DMEA team departed from DSMC with valuable products necessary for continuing their international partnering activities. These products were:

- A Summary Statement of Intent to submit for authorization of the development of an international agreement.
- A draft Memorandum of Understanding suitable for use with a NATO Agency.
- A matrix of vehicles for international activity highlighting the differing legal frameworks and financial flows with each approach.

Smart Business 20/20

The Defense Acquisition University (DAU) business plan for 2000-2001, *Smart Business 20/20*, encompasses five goals required to turn the DAU vision

DMEA believes it to be in their interest to engage in international partnering arrangements.

ment), the Cooperative Research and Development Agreement (CRADA), and the Summary Statement of Intent (the U.S. internal documentation necessary to initiate international negotiation). This core effort was supplemented by a guest lecture by the Director of International Security Programs from the Office of the Secretary of Defense (Policy), Susan Ludlow-MacMurray, accompanied by Christina Bromwell, a specialist on NATO security matters.

Participation

Five senior officials of DMEA participated in the workshop and prepared several products necessary for the pending international partnering activities. It was a remarkably intensive three days. The DMEA workshop participants were given

of becoming a learning resource of choice for the acquisition community into reality. At the end of the day, DSMC was able to provide our DMEA customer *what they needed, when and where they needed it*, thus meeting Goal No.1 of the DAU business plan.

Editor's Note: The author encourages readers to visit the DSMC International Acquisition Web site for further information on DSMC's complete international educational program at <http://www.dsmc.dsm.mil/international/international.htm>. He also welcomes questions or comments on this article. Contact him at kwatnoski_rich@dau.mil. For more information on the Defense Microelectronics Activity, go to www.sanders.com/atsp/dmea.htm.



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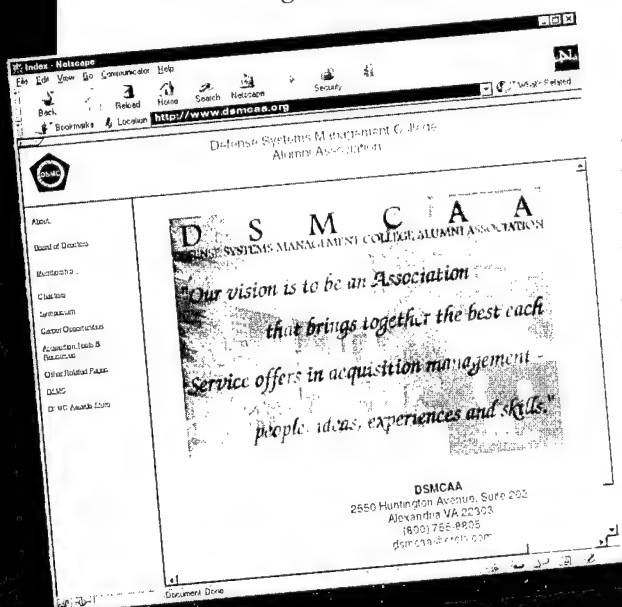
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BERNARD D. ROSTKER, PH.D.

Under Secretary of Defense (Personnel and Readiness)



Bernard D. Rostker was sworn in as the Under Secretary of Defense for Personnel and Readiness on May 23, 2000. A Presidential appointee confirmed by the Senate, he is the Defense Secretary's senior policy advisor on recruitment, career development, pay and benefits for 1.4 million active duty military personnel, 1.3 million Guard and Reserve personnel, and 725,000 DoD civilians.

The Under Secretary of Defense for Personnel and Readiness oversees the \$15 billion Defense Health Program; Defense Commissaries and Exchanges with \$5 billion in annual sales; the Defense Education Activity, which supports over 100,000 students; and the Defense Equal Opportunity Management Institute, the nation's largest equal opportunity training program. Rostker is responsible for developing policy guidance on and overseeing the state of our armed forces' military readiness.

Prior to his current position, Rostker served as the 25th Under Secretary of the Army where he focused on fulfilling the statutory responsibilities for recruiting, organizing, supplying, equipping, training, and mobilizing the Army and managing its \$64 billion annual budget and more than 1.3 million active duty, National Guard, Army Reserve, and civilian personnel.

For the four years prior to becoming Under Secretary, Rostker was Assistant Secretary of the Navy for Manpower and Reserve Affairs. On Nov. 12, 1996, he was also named Special Assistant to the Deputy Secretary of Defense for Gulf War Illnesses. He continues in this assignment and is responsible for coordinating all activities related to Department of Defense inquiries into the nature and causes of Gulf War illnesses.

Rostker received a Bachelor of Science degree from New York University in 1964 where he was a Distinguished Military Graduate of the ROTC Program and commissioned as a second lieutenant in the Army Reserve. He also holds Master's and Doctorate degrees in Economics from Syracuse University. He began his professional career in 1968 as an economist in the Manpower Requirements Directorate of the Office of the Assistant Secretary of Defense for Systems Analysis. He left government service in 1970 and moved to the RAND Corporation where he was a research economist and the Program Director of the Manpower Personnel and Training Program, a personnel studies program sponsored by the U.S. Air Force.

In 1977, Rostker returned to government service as Principal Deputy Assistant Secretary of the Navy for Manpower and Reserve Affairs. In 1979, he became Director of Selective Service, where he formulated the Selective Service Revitalization Plan. Under his leadership, the first mass selective service registration since World War II was executed, and almost four million young men registered.

Rostker moved to the Center for Naval Analyses in 1981 as the Director for the Navy's Management Program, where he guided the development of a research and studies program examining major management issues within the Navy. In 1983, he joined Systems Research and Applications Corporation (SRA), a computer software development company, as the Director, Systems Management Division.

In December 1984, Rostker returned to RAND to help establish a new Army studies and analysis center — called The Arroyo Center — where he was Program Director of the Force Development and Employment Program and Associate Director of the Center. In January 1990, Rostker left the Arroyo Center and assumed the position of Director of the Defense Manpower Research Center in RAND's National Defense Research Institute. He held that position until he returned to government service in October 1994.

pare our people then for assignments at that level and for further advancement."

Accreditation

Rostker believes that the DoD institutions that educate civilians, whether degree-granting or non-degree-granting, will benefit from development in the internal and external quality control process. He said his goal was that a hundred percent of institutions achieve accreditation through voluntary accreditations, whether regional accreditation or through the professional accreditation process.

Rostker challenged the DoD Chancellor to field a Web-based reporting system by next year to implement a system that is competitive through the Metrics of Excellence Task Force and the Working Group on Academic Resources. He wants the system to be less burdensome, and it should allow the collecting and sharing of data and information. His ideas on change cover four areas:

- To build into DoD's institutions and programs the ability to adapt to change as the nature of the Department's work changes. Not only will the workforce change over the next years, but the whole personnel system will also change.
- To serve the needs of DoD's managers.
- To serve the needs of DoD's personnel system.
- To be flexible.

In conclusion, Rostker noted, "Secretary Cohen has made it clear he wants the Department to have a world-class workforce. He expects us to deliver a world-class system of education, training, and professional development that will allow us to track and quickly retain the best workers — the best people — to help us achieve our goals in the twenty-first century.

"We need to know how we invest our educational and professional development dollars in the most effective way to achieve the Secretary's goals. That's my challenge, I want to make that your challenge."

education compared to that of military officers. He observed that civilians are generally expected to bring with them their education and their training. And as a result, the Department has been slow in initiating requirements for in-Service education. The Department of Defense, however, is transforming itself, according to Rostker, "so that we can better focus on those areas as an investment in the future."

Profiles Within the Civilian Workforce

"We are changing radically the way we think about careers in the Civil Service," Rostker said. He recognized that in the past, older individuals would retain senior government jobs, whereas the younger individuals would retain jobs as contractors. But as time went on, when senior government jobs became available, it was the younger contractors who were competing for those jobs. This breaks the myth, he said, that people in government jobs all go out and become contractors. These were contractors that wanted to come in and be government employees. He contends that we have to understand these patterns as we move toward the future.

Rostker believes effective management is key to working toward any goal. He explains that management techniques of succession and transition are the way to properly understand how to bring people into these roles and how to better develop employees. He also expressed the need to manage the transition of retirees and new personnel. "We'll have a very difficult situation over the next ten to fifteen years as this older workforce — the workforce we largely did not shape in the 1990s— starts retiring.

"It clearly is my intention to sponsor a DoD instruction that establishes academic quality standards for all of our educational institutions," Rostker continued. Standards for academic quality, he noted, will serve as a basis for communication between functional sponsors and the educational institutions that support them in developing and educating their workforce.



"We have conducted several studies to determine competencies that we need in the future, and several more themes have emerged. Our workforce will need to be better problem solvers. We'll need more advanced skills."

— Bernard D. Rostker
USD(P&R)

"It remains clear," Rostker said, "that we need to improve communication between the functional sponsors and their institutions. Career structures are tied to the need to create institutions of higher learning within the Department and to make those quality institutions ... That's why we established the Office of [DoD Chancellor of Education]."

Rostker also spoke of the OSD-chartered Metrics of Excellence Task Force, which will measure DoD's progress toward improving civilian education. The Task Force, he said, will establish standards for academic quality and provide a basis for reporting on resources that will provide a common ground for understanding, measuring, and reporting the performance of institutions that are critical in the training and education of the workforce.

"Most of our DoD educational institutions that teach civilians (and some colleges from the professional military education system) have been participating in this task force," added Rostker. "We have conducted several studies to determine competencies that we need in the future, and several more themes have emerged. Our workforce will need to be better problem solvers. We'll need more advanced skills."

Defense Leadership and Management Program

"In 1997 we created the Defense Leadership and Management Program (DLAMP). This is our first systematic Department-wide approach to prepare our next generation of civilian leaders."

The DLAMP, Rostker explained, requires a one-year rotational assignment and three months of professional development in the senior military system. It also requires advanced graduate courses in subjects relating to defense leadership.

"DLAMP has heightened our awareness of the need for similar investments in other areas. The Defense Science Board has recommended that we build a program that would be a preview, where we stress courses and experiences in the GS-9 through -12 levels that would pre-

Rostker Tackles Civilian Education

Quality Initiatives for the 21st Century — Continuing the Dialogue

SGT. KENNETH E. LOWERY II, USA

In an ever-changing world where advanced technology is king, preparation is key. To survive in today's information-saturated society, one must not only compete, but also keep pace and excel. Such is certainly true for Department of Defense military and civilian employees. For military personnel, on-the-job training comes with the territory. The civilian workforce, however, does not share in the same opportunities.

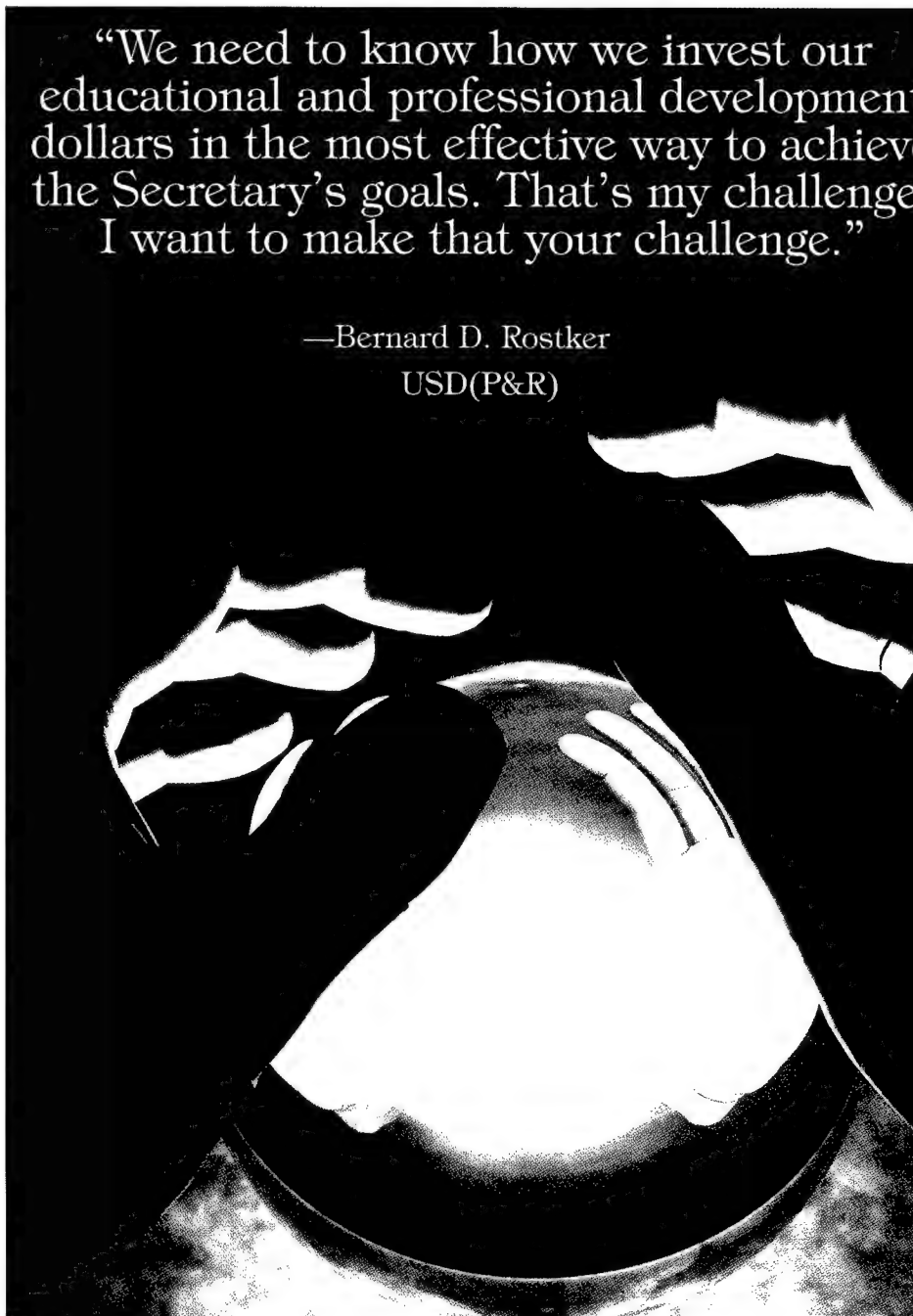
Dr. Bernard D. Rostker, Under Secretary of Defense for Personnel and Readiness, in a recent speech at the Conference on Civilian Education and Professional Development at the Naval Medical Center in Bethesda, Md., addressed such differences and introduced new ways to "even the score," allowing for training and progression in the civilian workforce.

"Part of the overall equation of improving and maintaining our defense civilian workforce is providing professional development and career management for the civilian workforce," he told the large, diversified audience of military and civilian educators. According to a Defense Science Board report, a professional development program for the civilian workforce comparable to the training and education provided to DoD's military officers must be established. The contention is that DoD must develop and sharpen the civilian workforce for the future — and the time to start is today.

Rostker spoke on the comparative differences between civilian training and

"We need to know how we invest our educational and professional development dollars in the most effective way to achieve the Secretary's goals. That's my challenge. I want to make that your challenge."

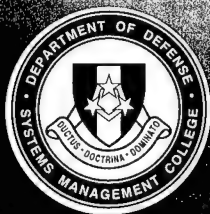
—Bernard D. Rostker
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Lowery is a staff writer for Program Manager magazine, Defense Acquisition University Press.

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- CEOs/CIOs
- Industry executives
- DAU faculty
- Current and former DSMC students
- Military acquisition leaders
- Previous PM and ARQ authors
- High-level DoD and industry executives
- Policy makers
- Budget and finance careerists
- Weapons users in the air, in the field, and at sea

WHAT

- Hot topics
- Lessons learned
- Op-Ed articles
- Reinventing government
- Speeches and addresses by high-level lecturers
- People to interview
- Acquisition news
- Changing acquisition paradigms
- Commercial business practices
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- Acquisition education

When: NOW

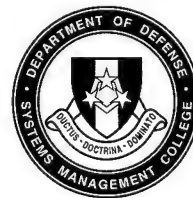
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THE DEFENSE SYSTEMS MANAGEMENT COLLEGE
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GuardRail Pilot Program — A Legacy of Teaming

Rapid Response Information Dominance

MAJ. STEVEN WINTER, USA • DAVID E. STERLING

Ever since industry proved the value of life cycle cost analysis, which is a method of calculating the cost of a system over its entire life span, the Department of Defense has consistently encouraged the Services to take the same pragmatic approach to weapon system development. In fact, the 1998 Defense Authorization Act mandated the use of such creative ideas to reduce the total ownership costs of key combat systems through innovation.

The Army's Total Ownership Cost Reduction (TOCR) Program is part of a continuing success story in responding to this challenge. Reducing costs and ensuring the highest return on overstressed and limited defense dollars has become the mantra for Service Acquisition Executives. The Army's GuardRail/Common Sensor (GR/CS) program has now joined the list of major system developments to follow the TOCR model.

GR/CS is a Corps-level airborne Signal Intelligence (SIGINT) collection and location system capable of providing tactical commanders near-real-time targeting information. Emphasizing Deep Battle and Follow-on Forces Attack support, the Army has fielded four separate battalions, all featuring different technologies but with similar configuration. All of the units integrate SIGINT, Communications Intelligence, and Electronic Intelligence reporting; enhanced signal classification and recognition; fast direction finding; and precision emitter lo-

RC-12 Airborne Reconnaissance Aircraft



cation through a combination of airborne sensors and ground processing equipment.

GuardRail Concept of Operations

The airborne component consists of RC-12D/H/K/N/P/Q, which normally fly operational missions in sets of three aircraft. They send information in real-time through three dedicated wideband interoperable data links to four integrated-processing facility vans.

The vans make up the heart of the ground component, which also includes a complete array of support equipment. Two types of terminals complete the business end of operations, including Satellite Communications and Joint Tactical Terminals. But, multiple maintenance vans, high-capacity electric power generators, and multiple movers make

this a total transportable intelligence gathering and distributing asset.

Each of the four units' baselines is different because of the efforts at the time of development to meet the continuously evolving threat environment each has been tasked to satisfy. The technology insertions employed in the respective systems employ processing and software differences that have created a significant sustainment challenge to Army managers at all levels. Consequently, this low-density, high-value system does not fit neatly into the normal Army support structure.

All GR/CS systems are currently managed by the Product Manager Aerial Common Sensor (PM/ACS), under the Program Executive Office for Intelligence, Electronic Warfare, and Sensors (PEO

Winter is the Assistant Product Manager for the GuardRail Common Sensor System for PM Aerial Common Sensor, Fort Monmouth, N.J. He holds an M.S. in Administration from Central Michigan University and a B.S.P.E. from the University of Colorado. **Sterling** is a vice president of Adroit Systems, Inc., responsible for corporate strategy and supervising analysis efforts dealing with applications of Intelligence, Surveillance, and Reconnaissance systems for the Department of Defense. He holds an M.S.E.E. from Stanford University and a B.S.E.E. from the U.S. Air Force Academy.

Integrated Processing Facility (IPF), Hunter
Airfield, Ga.



IEW&S) oversight, and sustained by the U.S. Army Communications-Electronics Command (CECOM) for payload and ground equipment and Aviation Missile and Communications for aircraft. Starting in 2009, GR/CS will begin transitioning into the next generation airborne system called the Aerial Common Sensor Program, which will achieve the ultimate goal of continual, rapid response information dominance on the battlefield for land component commanders.

Our primary goal is to continuously improve our support to the soldiers. I view this [GuardRail] program as an opportunity to change the age-old perspective in which life cycle costs are managed.

**—Victor J. Ferlise
Deputy to the CG, CECOM**



Signing of the Memorandum of Agreement for the GuardRail Pilot Program.

Photo by Greg Brower

In the meantime, the challenge of managing and integrating the current GR/CS units to meet DoD guidelines for improving total cost management goes on. Because senior executives realized the lessons learned from the complex GR/CS program would be useful to other Army systems, they created the GR/CS Pilot Program. The bottom line goals for this program are to develop a tailored systems approach that will use best business practices and strategies to substantially reduce sustainment and upgrade costs.

In April, Army Maj. Gen. Robert L. Nabors, Commander of CECOM, and Edward T. Bair, PEO IEW&S, signed a Memorandum of Agreement jointly establishing a shared sustainment plan for the GuardRail Pilot Program. The key component of the agreement is that both organizations will establish a co-equal decision authority for program and financial management of GR/CS sustainment and future improvements through a series of focused Integrated Product Teams (IPTs).

Signing the Memorandum of Agreement for the GuardRail Pilot Program

"The goal of this joint-led pilot program [GuardRail/Common Sensor] is all about achieving integrated life cycle management," Bair said. "The PM Aerial Common Sensor/CECOM team has always been an innovator in applying state-of-the-art technology to GuardRail and the Army's IEW [Intelligence and Electronic Warfare] collection sensor needs.

"We've achieved many technical firsts for any DoD Airborne ISR [Intelligence, Surveillance and Reconnaissance] capability ... remote operations of airborne signal intelligence sensors, precision targeting location accuracy, and direct-air-to-satellite relay capabilities," Bair continued.

"This joint PEO/CECOM initiative, codified in the signing of this Memorandum of Agreement is all about our continued commitment to active teaming. Teaming is not just a word. It is all about trust, credibility, candor, respect, mutual ob-

jectives, and being measured as a team on results. And, this pilot program will take this legacy of teaming to the next level of efficient as well as effective support to our warfighters," he said.

The GR/CS Pilot Program will be managed through an IPT structure consisting of an Executive IPT, an Integrating IPT, and several working IPTs. Each of the IPTs will be empowered to make decisions and recommend changes to law, policy, or regulations through the appropriate chain of command. While senior managers at the executive level will provide guidance to execute the implementation plan, the integrating IPT will directly manage the transition to the Pilot Program. The working groups will provide the research and analysis needed to develop the detailed implementation actions.

Changes may be necessary to the current sustainment and upgrade funding process. The Pilot Program has its own financial and management authority to accomplish cradle-to-grave support of the GR/CS system, which could conflict with current DoD procedures. Furthermore, managers have already identified

potential conflicts with Army policy on application restrictions for continuous technology refreshment initiatives. Obtaining waivers to permit the development and fielding of "best solutions" for software and hardware initiatives will enable the GR/CS team to execute a robust TOCR program.

"This close partnership, joint cooperation, and teaming between CECOM and the PEO enables Team C4IEWS to leverage the rapid advances in information technology through innovative support concepts and to ensure the highest levels of service while maintaining cost effectiveness," said Victor J. Ferlise, Deputy to the CECOM Commanding General.

"Our primary goal is to continuously improve our support to the soldiers. I view this program as an opportunity to change the age-old perspective in which life cycle costs are managed."

Editor's Note: The authors welcome questions and comments on this article. Contact Winter at Stephen.Winter@ievs.monmouth.army.mil; and contact Sterling at dsterlin@alexandria.adroit.com.

DAU Publishes *Fast-Track Initiatives*

The Defense Acquisition University (DAU) is restructuring and building a strategic plan to rethink DoD's business processes, reduce costs, improve efficiency, and prepare the Acquisition, Technology and Logistics Workforce for new ways of doing business.

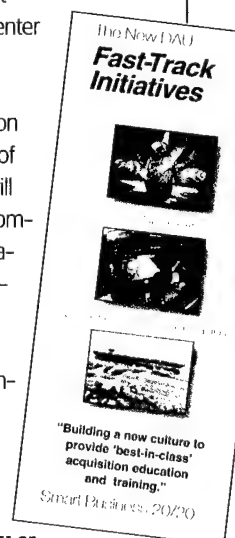
To communicate their efforts, DAU has published a new *DAU Fast-Track Initiatives* brochure, which details how the University intends to go about developing new ways of doing business. These initiatives, once implemented, should lead to better business practices throughout DoD. Viewed as "The Way Ahead for Acquisition Training," the DAU's Fast-Track Initiatives include:

- Headquarters, DAU collocation with the Defense Systems Management College at Fort Belvoir, Va.
- Revision of PM Training Curriculum
- Critical Thinking and Case-Based Curriculum
- Faculty Development and Currency
- Budget Reassessment and Realignment

- Functional Integrated Process Team/ Overarching Integrated Process Team (FIPT/OIPT) Jump-Start
- Supporting the new "5000" Changes
- Knowledge Management
- Change Management Center
- Strategic Alliances

Through improved acquisition training and reorganization of DAU staff functions, DAU will offer the DoD acquisition community an acquisition education, training, and career development program that meets their educational needs well into the 21st century.

For Fast-Track Initiatives progress, visit our Web site at www.acq.osd.mil/dau or call Army Col. Joe Johnson: (703) 805-2140; DSN 655-2140.



ACQUISITION REFORM

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Deputy Under Secretary of Defense (Acquisition Reform) (DUSD(AR))

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DoD Inspector General

<http://www.dodig.osd.mil/pubs/index.html>
Search for audit and evaluation reports, Inspector General testimony, and planned and ongoing audit projects of interest to the acquisition community.

Deputy Director, Systems Engineering, USD(AT&L/IO/SE)

<http://www.acq.osd.mil/io/se/index.htm>
Systems engineering mission; Defense Acquisition Workforce Improvement Act information, training, and related sites; information on key areas of systems engineering responsibility.

Defense Acquisition Deskbook

<http://www.deskbook.osd.mil>
Automated acquisition reference tool covering mandatory and discretionary practices.

Defense Acquisition University (DAU)

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DAU Course Catalog, course schedule, policy documents and training news from the Defense Acquisition Workforce.

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Take DAU courses online at your desk, at home, at your convenience!

Acquisition Reform Communications Center (ARCC)

<http://www.acq.osd.mil/dau/arcc>
Acquisition Reform training opportunities and materials; announcements of upcoming Acquisition Reform events, and Issues Forum for discussion.

Army Acquisition Corps (AAC)

<http://dacm.sarda.army.mil>
News; policy; publications; personnel demo; contacts; training opportunities.

Army Acquisition

<http://www.acqnet.sarda.army.mil>
A-MART; documents library; training and business opportunities; past performance; paperless contracting; labor rates.

Navy Acquisition Reform

<http://www.acq-ref.navy.mil/>
Acquisition policy and guidance; World-Class Practices; Acquisition Center of Excellence; training opportunities.

Navy Acquisition, Research and Development Information Center

<http://nadic.nrl.navy.mil>
News and announcements; acronyms; publications and regulations; technical reports; "How to Do Business with the Navy"; much more!

Naval Sea Systems Command

<http://www.navsea.navy.mil/sea017/toc.htm>
Total Ownership Cost (TOC); documentation and policy; Reduction Plan; Implementation Timeline; TOC reporting templates; Frequently Asked Questions (FAQs).

Navy Acquisition and Business Management

<http://www.abm.rda.hq.navy.mil>
Policy documents; training opportunities; guides on areas such as risk management, acquisition environmental issues, past performance, and more; news and assistance for the Standardized Procurement System (SPS) community; notices of upcoming events.

Space and Naval Warfare Systems Command (SPAWAR)

<https://e-commerce.spawar.navy.mil>
Your source for SPAWAR business opportunities, acquisition news, solicitations, and small business information.

Air Force (Acquisition)

<http://www.safaq.hq.af.mil/>
Policy; career development and training opportunities; reducing TOC; library; links.

Air Force Materiel Command (AFMC) Contracting Laboratory's Federal Acquisition Regulation (FAR) Site

<http://farsite.hill.af.mil/>
FAR search tool; *Commerce Business Daily* Announcements (CBDNet); *Federal Register*; Electronic Forms Library.

Defense Systems Management College (DSMC)

<http://www.dsmc.dsm.mil>
DSMC educational products and services; course schedules; *Program Manager* magazine and *Acquisition Review Quarterly* journal; job opportunities.

Defense Advanced Research Projects Agency (DARPA)

<http://www.darpa.mil>
News releases; current solicitations; "Doing Business with DARPA."

Defense Information Systems Agency (DISA)

<http://www.disa.mil>
Structure and mission of DISA; Defense Information System Network; Defense Message System; Global Command and Control System; much more!

National Imagery and Mapping Agency [Formerly Defense Mapping Agency (DMA)]

<http://www.nima.mil>
Imagery; maps and geodata; Freedom of Information Act resources; publications.

Defense Modeling and Simulation Office (DMSO)

<http://www.dmsomil>
DoD Modeling and Simulation Master Plan; document library; events; services.

Defense Technical Information Center (DTIC)

<http://www.dtic.mil/>
Technical reports; products and services; registration with DTIC; special programs; acronyms; DTIC FAQs.

Joint Electronic Commerce Program Office (JECPO)

<http://www.acq.osd.mil/ec/>
Policy; newsletters; Central Contractor Registration; assistance centers; DoD Electronic Commerce Partners.

Open Systems Joint Task Force

<http://www.acq.osd.mil/osjtf>
Open Systems education and training opportunities; studies and assessments; projects, initiatives and plans; reference library.

Government Education and Training Network (GETN) (For Department of Defense Only)

<http://atn.afit.af.mil>
Schedule of distance learning opportunities.

Government-Industry Data Exchange Program (GIDEP)

<http://www.gidep.corona.navy.mil>
Federally funded co-op of government and industry participants that provides an electronic forum to exchange technical information essential during research, design, development, production, and operational phases of the life cycle of systems, facilities, and equipment.

ACQUISITION REFORM

An Internet Listing Tailored to the Professional Acquisition Workforce

Surfing the Net



FEDERAL CIVILIAN AGENCIES

Acquisition Reform Network (ARNET)

<http://www.arnet.gov/>
Virtual library; federal acquisition and procurement opportunities; best practices; electronic forums; business opportunities; acquisition training; Excluded Parties List.

Federal Acquisition Institute (FAI)

<http://www.faionline.com>
Virtual campus for learning opportunities as well as information access and performance support.

Federal Acquisition Jump Station

<http://nais.nasa.gov/fedproc/home.html>
Procurement and acquisition servers by contracting activity; CBDNet; Reference Library.

Federal Aviation Administration (FAA)

<http://www.asu.faa.gov>
Online policy and guidance for all aspects of the acquisition process.

General Accounting Office (GAO)

<http://www.gao.gov>
Access to GAO reports, policy and guidance, and FAQs.

General Services Administration (GSA)

<http://www.gsa.gov>
Online shopping for commercial items to support government interests.

Library of Congress

<http://www.loc.gov>
Research services; Congress at Work; Copyright Office; FAQs.

National Partnership for Reinventing Government (NPR)

<http://www.npr.gov/>
NPR accomplishments and initiatives; "how to" tools; library.

National Technical Information Service (NTIS)

<http://chaos.fedworld.gov/onow/>
Online service for purchasing technical reports, computer products, videotapes, audiocassettes, and more!

Small Business Administration (SBA)

<http://www.SBAonline.SBA.gov>
Communications network for small businesses.

U.S. Coast Guard

<http://www.uscg.mil>
News and current events; services; points of contact; FAQs.

TOPICAL LISTINGS

MANPRINT

<http://www.MANPRINT.army.mil>
Points of contact for program managers; relevant regulations; policy letters from the Army Acquisition Executive; as well as briefings on the MANPRINT program.

DoD Acquisition Workforce Personnel Demonstration Project

<http://www.crfpst.wpafb.af.mil/>
Federal Register and Waivers Package; documents and briefings; reference material; operating procedures; FAQs.

DoD Specifications and Standards Home Page

<http://www.dsp.dla.mil>
All about DoD standardization; key Points of Contact; FAQs; Military Specifications and Standards Reform; newsletters; training; nongovernment standards; links to related sites.

Joint Advanced Distributed Simulation (JADS) Joint Test Force

<http://www.jads.abq.com>
JADS is a one-stop shop for complete information on distributed simulation and its applicability to test and evaluation and acquisition.

Risk Management

http://www.acq.osd.mil/sa/se/risk_management/index.htm
Risk policies and procedures; risk tools and products; events and ongoing efforts; related papers, speeches, publications, and Web sites.

Earned Value Management

<http://www.acq.osd.mil/pmp>
Implementation of Earned Value Management; latest policy changes; standards; international developments; active notebook.

Fedworld Information

<http://www.fedworld.gov>
Comprehensive central access point for searching, locating, ordering, and acquiring government and business information.

GSA Federal Supply Service

<http://pub.fss.gsa.gov>
The No. 1 resource for the latest services and products industry has to offer.

INDUSTRY AND PROFESSIONAL ORGANIZATIONS

Commerce Business Daily

<http://www.govcon.com/>
Access to current and back issues with search capabilities; business opportunities; interactive yellow pages.

DSMC Alumni Association

<http://www.dsmcaa.org>
Acquisition tools and resources; government and related links; career opportunities; member forums.

Electronic Industries Alliance (EIA)

<http://www.eia.org>
Government Relations Department; includes links to issue councils; market research assistance.

National Contract Management Association (NCMA)

<http://www.ncmahq.org>
"What's New in Contracting?"; educational products catalog; career center.

National Defense Industrial Association (NDIA)

<http://www.ndia.org>
Association news; events; government policy; *National Defense Magazine*.

International Society of Logistics

<http://www.sole.org/>
Online desk references that link to logistics problem-solving advice; Certified Professional Logistician certification.

Computer Assisted Technology Transfer (CATT) Program

<http://catt.bus.okstate.edu>
Collaborative effort between government, industry, and academia. Learn about CATT and how to participate.

Software Program Managers Network

<http://www.spmn.com>
Site supports project managers, software practitioners, and government contractors. Contains publications on highly effective software development best practices.

Association of Old Crows (AOC)

<http://www.crows.org>
Association news; conventions, conferences and courses; *Journal of Electronic Defense* magazine.

If you would like to add your acquisition or acquisition reform-related Web site to this list, please call the Acquisition Reform Communications Center (ARCC) at 1-888-747-ARCC. DAU encourages the reciprocal linking of its Home Page to other interested agencies. Contact the DAU Webmaster at dau_webmaster@acq.osd.mil

2001 ACQUISITION RESEARCH SYMPOSIUM CALL FOR PAPERS

"2001 — An Acquisition Odyssey: The Next Stage in the Transformation"

Sponsored by the Deputy Under Secretary of
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THE CALL

Researchers, both national and international, interested in or involved with all aspects of acquisition are invited to submit papers. Papers should reflect well-documented research or empirically supported experience in one of the topic areas. Your paper should produce a new or revised theory of interest to the acquisition community using a reliable, valid instrument to provide your measured outcomes.

The theme, "2001 — An Acquisition Odyssey: The Next Stage in the Transformation," has been selected to address the issues brought forth in the Acquisition Reform Initiatives. The primary purpose for the Symposium is to develop candid, open discussions among government, industry, academe, and international communities of interest regarding major concepts, policy, issues, and procedures of concern to the acquisition community. Secondly, the Symposium provides a dynamic forum for the discussion of recent research efforts, best practices, incentives, and major thrusts in the field of acquisition reform management.

TOPIC AREAS

Acquisition Logistics Reform

Business-based Cost and Resource Management

Commerciality

Competitive Acquisition Strategies

Information Technology in Acquisition

Globalization

Integrated Product Teams' Successes

Outsourcing and Privatization

Partnerships

Performance Basing

Small Business Issues

Workforce Issues

PAPER SUBMISSION

Submit three publishable (edited and formatted) copies of your paper and electronic media on a 3-½" disk **not later than Jan. 31, 2001**. Submit to: *Alberta Ladymon, DSMC Program Chair ARS 01, 9820 Belvoir Road, Fort Belvoir, Va. 22060-5565 or E-mail to ars01@dsmc.dsm.mil*. If you have questions, please call (703) 805-5406/2525 or DSN 655. Include the *Title, Topic Area, Point of Contact's Name, Business Address, Telephone Numbers, and E-mail Address* on a cover sheet to accompany your paper. All correspondence will be communicated with the point of contact listed.

The *Book of Proceedings* will be published on a CD-ROM. Therefore, all research papers **MUST** be submitted on a 3-½" disk using the format and guidelines listed here.

FORMATS

DOC — Save your paper in Microsoft Word 97

PDF — Save your paper using Portable Document Format

RTF — Save your paper using Rich Text Format. (Provide graphic files in original format, i.e., PowerPoint.ppt.)

GUIDELINES

- 1" top, bottom, and side margins
- Title of paper centered on top of the first page
- Name(s) of author(s) centered under title; Business name(s) of author(s) centered under name(s) of author(s)
- The rest of the paper should have 2 columns of equal width.
- **Limit your paper to 15 pages or less.**
- Graphics and/or charts can either be whole page, half page, or quarter page.
- The font should be Times New Roman with a font size of 12.
- Elements of your paper: *One-page Abstract* that includes a concise statement of the problem/research question and the scope and method of your approach, *Introduction, Body of the Paper, Conclusions, and References/Endnotes.*



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